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ACIDIC PRECIPITATION IN ONTARIO STUDY - APIOS

CUMULATIVE (28 DAY) PRECIPITATION CHEMISTRY LISTINGS OF SITES IN INDUSTRIAL/URBAN AREAS IN ONTARIO SEPTEMBER 2, 1980 - JANUARY 4, 1983

Atmospheric Processes Studies Unit
Air Quality and Meteorology Section
Air Resources Branch
Toronto, Ontario
Canada, M5S 1Z8

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A.P.I.O.S. Coordination Office
Ontario Ministry of the Environment
6th Floor, 40 St. Clair Ave. W.,
Toronto, Ontario
Canada, M4V 1P5
Project Coordinator : Dr. T.G. Brydges

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PART I

INTRODUCTION

INTRODUCTION

The data listed herein are a summary of the results acquired from the APIOS cumulative precipitation sites in industrial/urban areas in Ontario from September 2, 1980 to January 4, 1983. The sampler utilized for collection of wet cumulative deposition is the M.I.C. Type "A" collector (Sangamo). During May to October when precipitation is mainly in the form of rain, the Sangamo collector is equipped with a 34 cm x 61 cm polyethylene bag insert. For snow and snow/rain collection from November to April, deeper collection vessels are utilized (122 cm) with 34 cm x 122 cm polyethylene bag inserts. The deeper collection vessel is utilized to reduce snow blow out. The period of accumulation per sample was monthly since the network inception until January, 1982. After that time, a 28 day sampling period was used.

All data presented in this report have been screened for validity. Remarks and qualifications have been appended to records, and/or results where necessary. The screening procedure involved checking each record for chemical analysis integrity (e.g. ionic balance, observed vs. theoretical conductance). Gross limit checks were applied to the results. Upper limits were determined as M + 2S where median (M) and scale (S) represent robust estimates of mean and standard deviation respectively. Scale of the distribution was estimated from interquartile distance , i.e. S=0.74 (3rd quartile - 1st quartile) based upon logarithmically transformed results. In a situation where the distribuiton is significantly bounded by reported detection limits, S may be estimated as follows, S=1.48 (3rd quartile - 2nd quartile). All lower gross limits were specified as zero. The data were also screened for outliers statistically by applying the Dixon Ratio test to the highest and lowest values observed in each region on a monthly basis. Outliers were determined at the 95% level of confidence. Records and/or results deemed unreliable were flagged but not deleted. Because of the locations of these special study sites which are in industrial/urban areas, high variability in the analytical results is observed as expected. Therefore uncertainty still may remain after data have been screened for validity and subjective review has been applied to flag analytical results. Sampler collection efficiency is deemed abnormal if found to be less than 50% or greater than 120%. If collection efficiency is found to be less than 50%, then the reported sample volume is flagged as unreliable. Also, if it is reported that the sample has spilled, then the calculated efficiency is not reported in the data listings. Data in the Haldimond-Norfolk (NEMP) region have been reported elsewhere previously (1). The flags might be different in some cases because in the previous case, these data were not subject to as stringent screening criteria as they are here.

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(1) Kiely, P. 1982: Nanticoke Environmental Management Program Network Data Summary for 1980. MOE Report Number ARB-20-82-ARSP

Kiely, P. 1983: Naticoke Environmental Mangement Program Network Data Summary for 1981. MOE Report Number ARB-144-83-ARSP

Kiely, P. 1984: Nanticoke Environmental Management Program Network Data Summary for 1982 MOE Report Number ARB-44-84-ARSP

Station Identification

The station identification is defined by two descriptive fields (e.g., Binbrook/Cumulative precipitation). The first field refers to the sampling location. The second field describes the sampling interval and the sampling type (e.g., wet or dry). All precipitation chemistry listings are given in alphabetic order by station name within each region.

Cumulative Precipitation Chemistry Listings

Sample type, as coded in the data listings, represents the state of the collected sample at time of removal. The sample date represents the date on which the sample was removed from the sampler. All chemical analyses were done on unfiltered samples. Lab pH entries represent pH measurements obtained at the MOE Laboratory in Toronto. Reported total hydrogen ion concentraiton (mg l^{-1}) represents a titration of the sample with NaOH to an end point pH of 8.3. For a complete outline of lab analytical methodology please consult the Ontario Ministry of the Environment report "Outlines of Analytical Methods" coordinated by Water Quality Section, Laboratory Services Branch, June 1981.

Of the reported metals, aluminum, copper, iron and zinc were found to display significant adsorptive losses. As a result, a leach solution of 5% HNO_3 (1 litre) is placed in the emptied collection bag for 24 hours. The leach solution is then analysed for the above metals and a final metal concentration is then calculated. In the calculation of final metal concentration, if a detection limit is encountered, a value corresponding to one half the detection limit is utilized.

Co-located with each sampler is a cumulative precipitation gauge which serves as a primary standard of precipitation during the collection period. However, if the cumulative gauge depth is missing or is thought to be inaccurate, then an approximate precipitation depth is determined. The approximation is made by accumulating three surrounding CLIMAT* station daily depth gauge results individually and then interpolating linearly to the APIOS station. Sometimes precipitation gauge results could not be calculated by the above method, in which case the data are missing in the tables to follow.

Calculation of Equivalent Precipitation Depth (mm)

$$\text{Equivalent Precipitation Depth (mm)} = \frac{\text{Volume Collected (ml)} \times 30.8}{1000}$$

Calculation of Observed Sampling Efficiency

$$\% \text{ Efficiency} = \frac{\text{Equivalent Precipitation Depth (mm)} \times 100\ \%}{\text{Gauge Depth (mm)}}$$

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* Environment Canada, Atmospheric Environment Service Meteorological Observations in Eastern Canada, Monthly Record

Field Comment Code Index

A - Insects in sample
B - Leaves in sample
C - Particulates in sample
D - Fibres in sample
E - Sample not submitted
F - Sampler malfunctioned
G - Sample spilled or leaked
H - Volume incorrect
I - Event(s) missed
J - Wet side open when not precipitating
K - No precipitation collected
L - Part of event missed
Q - Other

Office Comment Code Index

C - calculated/observed conductance discrepancy
H - calculated/observed pH discrepancy
J - Δ pH large
M - poor ionic balance
N - abnormal sampler efficiency
T - free hydrogen exceeds total hydrogen
X - sample lost

Analytical Result Remark Code Index

> - actual result greater than value reported
< - actual result less than value reported
T - actual result less than criterion of detection
W - no response, minimum possible result reported
A - approximate value
U - unreliable result
L - bag leach result not available
L< - bag leach result not available and precipitation sample result has been reported as a detection limit

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PART II

STATION DESCRIPTION AND LOCATION MAP

SITE DESCRIPTIONS OF STATIONS IN INDUSTRIAL/URBAN AREAS

MOE REGION	STATION NAME	LATITUDE (North)	LONGITUDE (West)	UTM GRID CO-ORDINATE (Northing)	(Easting)
Haldimond-Norfolk (NEMP)	Binbrook	43°07'06"	79°52'40"	4774500	591400
	Canborough	42°59'77"	79°38'42"	4760800	611950
	Dog's Nest East	41°48'40"	80°08'46"	4739600	570200
	North Dufferin	42°59'39"	79°58'38"	4759990	583750
	South Canfield	42°55'39"	79°44'49"	4752700	602600
	Villa Nova	42°55'39"	80°12'13"	4753500	565400
Sudbury	Burwash	46°15'46"	80°48'48"	5123000	514600
	Hanmer	46°39'45"	80°56'37"	5167400	504300
	Lively	46°26'45"	81°09'00"	5143400	488400
Other Sites	Germain Park	42°58'35"	82°23'00"	4758750	387250
	Toronto	43°39'15"	79°23'14"	4835500	630100

1 - BINBROOK
2 - CANBOROUGH
3 - DOG'S NEST EAST
4 - NORTH DUFFERIN
5 - SOUTH CANFIELD
6 - VILLA NOVA
7 - BURWASH
8 - HANMER
9 - LIVELY
10 - GERMAIN PARK
11 - TORONTO

PART III

HALDIMOND-NORFOLK (NEMP)

CUMULATIVE PRECIPITATION CHEMISTRY LISTINGS

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BINBROOK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
OCT 2,80	SEP 2,80	****	1322	1	70.2	9	921	3	1	19	C	
OCT 31,80	OCT 2,80	1332	1700	1	60.5	9	922	3	1	56	D	
NOV 28,00	OCT 31,80	1700	1540	2	35.0	9	923	3	1	18	D	
DEC 31,80	NOV 28,80	1600	930	4	51.6	9	924	3	1	19	C	H
JAN 30,81	DEC 31,80	930	1350	2	14.1	9	925	3	1	8	C	
FEB 27,81	JAN 30,81	1400	1315	3	71.0	9	926	3	1	24	DF	
MAR 31,81	FEB 27,81	1330	1235	3	39.2	9	1925	3	1	63	C	
APR 30,81	MAR 31,81	1245	1335	1	75.2	9	1903	3	1	73	AC	
MAY 29,81	APR 30,81	1345	1200	1	58.0	0	39005	3	1	69	AD	
JUN 30,81	MAY 29,81	1210	1220	1	76.6	9	39019	3	1	98	AD	
JUL 31,81	JUN 30,81	1230	1245	1	109.0	0	39026	3	1	74	A	
AUG 31,81	JUL 31,81	1255	1150	1	125.0	0	39041	3	1	80	AC	
SEP 30,81	AUG 31,81	1200	1655	1	188.8	9	39055	3	1	59	C	
OCT 30,81	SEP 30,81	1715	1130	1	77.0	0	39069	3	1	82	ADFJL	
NOV 30,81	OCT 30,81	1140	1210	1	33.0	0	39083	3	1	***	ADG	
JAN 5,82	NOV 30,81	1220	1235	4	47.0	0	39094	3	1	77	CD	
FEB 2,82	JAN 5,82	1250	1300	2	41.0	0	39108	3	1	62	CD	H
MAR 2,82	FEB 2,82	1310	1230	4	31.0	0	39120	3	1	37	FJC	N
MAR 30,82	MAR 2,82	1245	1140	4	52.0	0	39124	3	1	63	CD	
APR 27,82	MAR 30,82	1145	1345	1	64.0	0	39144	3	1	66	FJC	
MAY 25,82	APR 27,82	1350	1120	1	35.0	0	39151	3	1	77	A	
JUN 22,82	MAY 25,82	1130	1110	1	131.0	0	39166	3	1	70	C	
JUL 20,82	JUN 22,82	1120	1155	1	27.0	0	39175	3	1	65	AC	HCM
AUG 17,82	JUL 20,82	1205	1045	1	56.0	0	39188	3	1	79	C	TCM
SEP 14,82	AUG 17,82	1055	1000	1	58.0	0	39199	3	1	6	C	N
OCT 12,82	SEP 14,82	1010	1330	1	106.0	0	39212	3	1	79	B	
NOV 9,82	OCT 12,82	1345	1200	1	64.1	0	39228	3	1	75	C	
DEC 7,82	NOV 9,82	1210	1215	3	61.7	0	39239	3	1	75	F	
JAN 4,83	DEC 7,82	1225	1335	4	70.9	0	39243	3	1	54	CFJ	

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BINBROOK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
OCT 2,80	SEP 2,80	445.0	47.0	4.03	0.1204	5.45	0.70	0.63
OCT 31,80	OCT 2,80	1115.0	24.6	4.40	0.0772	3.10	0.56	0.54
NOV 28,80	OCT 31,80	205.0	*****	4.26	******	6.60	1.07	1.48
DEC 31,80	NOV 28,80	320.0	29.5	U 6.34	0.0426	5.00	0.76	U 1.91
JAN 30,81	DEC 31,80	40.0	U 236.0	3.92	******	*****	*****	*****
FEB 27,81	JAN 30,81	565.0	33.6	4.46	0.0766	4.85	0.77	1.17
MAR 31,81	FEB 27,81	810.0	41.3	4.31	0.0910	4.95	1.14	1.01
APR 30,81	MAR 31,81	1785.0	34.4	4.21	0.0936	3.90	0.63	0.37
MAY 29,81	APR 30,81	1300.0	51.0	4.06	0.1338	6.25	0.72	0.64
JUN 30,81	MAY 29,81	2440.0	38.5	4.11	0.1088	4.25	0.42	0.19
JUL 31,81	JUN 30,81	2625.0	58.0	3.98	0.1466	6.30	0.65	0.28
AUG 31,81	JUL 31,81	3280.0	58.0	3.95	0.1400	6.50	0.74	0.49
SEP 30,81	AUG 31,81	3630.0	40.6	4.06	0.1124	3.80	0.46	0.16
OCT 30,81	SEP 30,81	2063.0	27.5	4.67	0.0616	4.25	0.53	0.35
NOV 30,81	OCT 30,81	891.0	37.2	4.19	0.1006	4.15	0.58	0.36
JAN 5,82	NOV 30,81	1188.0	25.0	4.34	0.0810	2.50	0.44	0.26
FEB 2,82	JAN 5,82	829.0	23.0	4.83	0.0706	3.15	0.60	1.23
MAR 2,82	FEB 2,82	U 380.0	*****	4.25	0.1024	6.30	1.28	1.48
MAR 30,82	MAR 2,82	1070.0	51.8	4.14	0.1308	5.15	0.95	0.84
APR 27,82	MAR 30,82	1374.0	35.3	4.45	0.0744	5.20	0.72	0.97
MAY 25,82	APR 27,82	882.0	24.0	5.72	0.0326	4.80	0.66	0.67
JUN 22,82	MAY 25,82	3016.0	51.0	*****	0.1692	4.90	0.68	0.26
JUL 20,82	JUN 22,82	577.0	55.0	5.56	0.0466	6.50	0.93	0.74
AUG 17,82	JUL 20,82	1454.0	56.0	3.78	0.1362	5.65	0.62	0.30
SEP 14,82	AUG 17,82	U 118.0	*****	3.85	0.1476	7.10	0.76	0.32
OCT 12,82	SEP 14,82	2753.0	40.8	3.98	0.1176	3.80	0.58	0.19
NOV 9,82	OCT 12,82	1579.0	26.7	4.20	0.0806	2.95	0.42	0.27
DEC 7,82	NOV 9,82	1503.0	30.6	4.15	0.0830	3.15	0.35	0.17
JAN 4,83	DEC 7,82	1259.0	26.1	4.32	0.0728	2.50	0.40	0.40

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BINBROOK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
OCT 2,80	SEP 2,80	0.08	0.57	0.170	0.040	0.040	0.510	0.002
OCT 31,80	OCT 2,80	0.21	0.62	0.130	0.030	0.050	0.500	0.006
NOV 28,80	OCT 31,80	0.38	1.46	0.370	0.050	0.100	1.160	0.009
DEC 31,80	NOV 28,80	U 1.32	1.11	U 0.650	0.050	U 0.750	0.700	0.038
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.64	0.83	0.325	0.010	U 0.400	0.560	0.017
MAR 31,81	FEB 27,81	0.47	1.21	0.235	0.020	0.220	1.010	0.005
APR 30,81	MAR 31,81	0.22	0.69	0.080	0.040	0.060	0.610	0.004
MAY 29,81	APR 30,81	0.31	0.84	0.205	0.060	0.070	0.570	0.027
JUN 30,81	MAY 29,81	0.09	0.50	0.055	0.110	0.020	0.420	0.010
JUL 31,81	JUN 30,81	0.15	0.65	0.070	0.030	0.010	0.670	0.008
AUG 31,81	JUL 31,81	0.19	0.88	0.140	0.050	0.010	0.750	0.009
SEP 30,81	AUG 31,81	0.06	0.39	0.030	< 0.010	0.020	0.370	0.004
OCT 30,81	SEP 30,81	0.23	1.70	0.095	U 0.300	0.080	1.110	U 0.160
NOV 30,81	OCT 30,81	0.21	0.88	0.090	0.020	0.070	0.740	0.003
JAN 5,82	NOV 30,81	0.23	0.43	0.085	0.030	0.070	0.380	0.048
FEB 2,82	JAN 5,82	U 1.07	0.83	0.280	0.070	U 0.660	0.264	U 0.170
MAR 2,82	FEB 2,82	U 1.05	*****	U 0.600	0.060	U 0.635	0.810	*****
MAR 30,82	MAR 2,82	0.46	1.05	0.200	0.035	0.230	0.910	0.003
APR 27,82	MAR 30,82	0.40	0.63	0.260	0.045	0.180	0.710	0.015
MAY 25,82	APR 27,82	0.14	U 2.60	0.185	0.130	0.060	1.340	U 0.119
JUN 22,82	MAY 25,82	0.14	0.55	0.065	0.040	0.015	0.510	< 0.001
JUL 20,82	JUN 22,82	0.24	0.18	0.175	0.190	0.055	1.050	U 0.173
AUG 17,82	JUL 20,82	0.15	0.72	0.070	0.075	0.030	0.570	< 0.001
SEP 14,82	AUG 17,82	0.16	*****	0.095	0.090	0.040	0.720	*****
OCT 12,82	SEP 14,82	0.15	0.49	0.045	0.020	0.005	0.362	< 0.002
NOV 9,82	OCT 12,82	0.20	0.50	0.055	0.025	0.065	0.420	0.005
DEC 7,82	NOV 9,82	0.23	0.48	0.050	< 0.005	0.085	0.370	0.004
JAN 4,83	DEC 7,82	0.38	0.50	0.080	0.025	0.100	0.344	0.015

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BINBROOK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
OCT 2,80	SEP 2,80	0.007	0.002	0.030	0.123	0.007	< 0.002	0.080
OCT 31,80	OCT 2,80	0.008	U 0.011	0.011	0.096	< 0.001	< 0.002	0.048
NOV 28,80	OCT 31,80	*****	*****	*****	*****	*****	*****	*****
DEC 31,80	NOV 28,80	*****	*****	*****	*****	*****	*****	*****
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.022	0.002	0.038	U 0.689	0.017	< 0.002	0.504
MAR 31,81	FEB 27,81	0.012	0.002	0.025	0.121	0.012	< 0.002	0.151
APR 30,81	MAR 31,81	0.004	< 0.001	0.010	0.078	0.008	< 0.002	0.077
MAY 29,81	APR 30,81	0.008	< 0.001	0.015	0.057	0.012	< 0.002	0.027
JUN 30,81	MAY 29,81	0.003	< 0.001	0.004	0.035	0.006	< 0.002	0.018
JUL 31,81	JUN 30,81	0.004	< 0.001	0.009	0.060	0.010	< 0.002	0.050
AUG 31,81	JUL 31,81	0.007	< 0.001	0.011	0.050	0.011	< 0.002	0.032
SEP 30,81	AUG 31,81	0.002	< 0.001	0.005	0.027	0.008	< 0.002	0.012
OCT 30,81	SEP 30,81	0.005	< 0.001	0.012	0.022	0.011	< 0.002	0.038
NOV 30,81	OCT 30,81	0.004	0.001	0.014	0.022	0.016	< 0.002	0.023
JAN 5,82	NOV 30,81	0.003	< 0.001	0.006	0.028	0.005	< 0.002	< 0.009
FEB 2,82	JAN 5,82	U 0.041	0.001	0.023	U 0.829	0.013	U 0.002	U 0.921
MAR 2,82	FEB 2,82	*****	*****	*****	*****	*****	*****	*****
MAR 30,82	MAR 2,82	0.009	< 0.001	0.018	0.068	0.010	< 0.002	0.109
APR 27,82	MAR 30,82	0.018	< 0.001	0.002	0.141	0.005	< 0.002	0.118
MAY 25,82	APR 27,82	0.007	< 0.001	0.011	0.090	0.013	< 0.002	0.040
JUN 22,82	MAY 25,82	0.004	< 0.001	0.009	0.024	0.007	< 0.002	0.028
JUL 20,82	JUN 22,82	0.006	< 0.001	U 0.052	0.057	0.009	< 0.002	0.063
AUG 17,82	JUL 20,82	0.004	< 0.001	0.007	0.024	0.011	< 0.002	0.019
SEP 14,82	AUG 17,82	*****	*****	*****	*****	*****	*****	*****
OCT 12,82	SEP 14,82	0.003	< 0.001	0.006	0.039	0.007	< 0.002	0.023
NOV 9,82	OCT 12,82	0.003	< 0.001	0.007	0.025	0.006	< 0.002	0.017
DEC 7,82	NOV 9,82	< 0.001	< 0.001	0.005	0.018	0.007	< 0.002	0.016
JAN 4,83	DEC 7,82	0.004	< 0.001	0.007	0.032	0.007	< 0.002	0.031

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BINBROOK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
OCT 2,80	SEP 2,80	0.005	0.0002	0.0933
OCT 31,80	OCT 2,80	0.003	< 0.0001	0.0398
NOV 28,80	OCT 31,80	*****	******	0.0550
DEC 31,80	NOV 28,80	*****	******	U 0.0005
JAN 30,81	DEC 31,80	*****	******	0.1202
FEB 27,81	JAN 30,81	0.009	U 0.0012	0.0347
MAR 31,81	FEB 27,81	0.008	0.0002	0.0490
APR 30,81	MAR 31,81	0.020	< 0.0001	0.0617
MAY 29,81	APR 30,81	0.003	0.0002	0.0871
JUN 30,81	MAY 29,81	< 0.001	< 0.0001	0.0776
JUL 31,81	JUN 30,81	0.001	< 0.0001	0.1047
AUG 31,81	JUL 31,81	0.001	0.0002	0.1122
SEP 30,81	AUG 31,81	0.001	< 0.0001	0.0871
OCT 30,81	SEP 30,81	L 0.001	0.0002	0.0214
NOV 30,81	OCT 30,81	0.002	0.0004	0.0646
JAN 5,82	NOV 30,81	0.015	< 0.0001	0.0457
FEB 2,82	JAN 5,82	< 0.002	< 0.0001	0.0148
MAR 2,82	FEB 2,82	*****	******	0.0562
MAR 30,82	MAR 2,82	0.002	0.0002	0.0724
APR 27,82	MAR 30,82	0.002	0.0001	0.0355
MAY 25,82	APR 27,82	< 0.002	0.0002	0.0019
JUN 22,82	MAY 25,82	0.001	< 0.0001	******
JUL 20,82	JUN 22,82	< 0.003	0.0001	0.0028
AUG 17,82	JUL 20,82	< 0.002	< 0.0001	0.1660
SEP 14,82	AUG 17,82	*****	******	0.1413
OCT 12,82	SEP 14,82	0.001	< 0.0001	0.1047
NOV 9,82	OCT 12,82	0.001	< 0.0001	0.0631
DEC 7,82	NOV 9,82	< 0.002	< 0.0001	0.0708
JAN 4,83	DEC 7,82	< 0.002	< 0.0001	0.0479

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CANBOROUGH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
OCT 2,80	SEP 4,80	****	1405	1	80.0	9	909	3	1	63	A	MH
OCT 31,80	OCT 2,80	1412	1630	1	83.6	9	910	3	1	***	ADGF	
NOV 28,80	NOV 3,80	1220	1445	2	45.9	9	911	3	1	37	ADF	H
DEC 31,80	NOV 28,80	1455	1030	2	52.6	9	912	3	1	37	C	
JAN 30,81	DEC 31,80	1030	1300	2	23.0	9	913	3	1	12		
FEB 27,81	JAN 30,81	1310	1210	3	86.1	9	914	3	1	45	D	
MAR 31,81	FEB 27,81	1230	1155	3	31.8	9	1927	3	1	85	C	
APR 30,81	MAR 31,81	1155	1155	1	85.8	9	1904	3	1	53	AC	
MAY 29,81	APR 30,81	1205	1110	1	66.6	9	39003	3	1	69	CD	
JUN 30,81	MAY 29,81	1120	1125	1	87.0	0	39017	3	1	82	AD	
JUL 31,81	JUN 30,81	1135	1150	1	108.0	0	39032	3	1	80	A	
AUG 31,81	JUL 31,81	1200	1105	1	47.0	0	39039	3	1	78	AC	
SEP 30,81	AUG 31,81	1105	1100	1	100.0	0	39059	3	1	82	AC	
OCT 30,81	SEP 30,81	1110	1315	1	55.0	0	39071	3	1	99	CD	
NOV 30,81	OCT 30,81	1325	1050	1	39.5	0	39073	3	1	89		
JAN 5,82	NOV 30,81	1115	1155	4	63.0	0	39091	3	1	77	ACD	
FEB 2,82	JAN 5,82	1155	1205	2	41.0	0	39106	3	1	103	CD	H
MAR 2,82	FEB 2,82	1215	1115	4	29.0	0	39117	3	1	64	C	H
MAR 30,82	MAR 2,82	1125	1055	4	62.0	0	39125	3	1	72	CD	
APR 27,82	MAR 30,82	1100	1240	1	67.0	0	39140	3	1	62	C	HCM
MAY 25,82	APR 27,82	1250	1015	1	22.5	0	39155	3	1	68	AC	
JUN 22,82	MAY 25,82	1025	1025	1	116.5	0	39165	3	1	67	C	
JUL 20,82	JUN 22,82	1035	1100	1	34.0	0	39179	3	1	53	ADFI	
AUG 17,82	JUL 20,82	1110	940	1	68.0	0	39187	3	1	74	AC	T
SEP 14,82	AUG 17,82	950	910	1	56.0	0	39203	3	1	66	CD	
OCT 12,82	SEP 14,82	920	1245	1	119.0	0	39214	3	1	79	ABC	MM
NOV 9,82	OCT 12,82	1300	1120	1	77.2	0	39226	3	1	86	C	
DEC 7,82	NOV 9,82	1130	1100	3	80.6	0	39236	3	1	78	AC	
JAN 4,83	DEC 7,82	1135	1345	4	82.3	0	39246	3	1	***	BCG	

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CANBOROUGH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM		PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L		CALCIUM MG/L
OCT 2,80	SEP 4,80	1645.0	51.0	U	6.98	0.0772	7.15	0.48		0.28
OCT 31,80	OCT 2,80	2050.0	32.4		4.26	0.0916	3.35	0.64		0.40
NOV 28,80	NOV 3,80	565.0	36.0		4.25	0.0874	4.45	0.92		0.96
DEC 31,80	NOV 28,80	640.0	32.5		4.26	0.0922	3.30	0.55		0.24
JAN 30,81	DEC 31,80	90.0	U 166.0		4.28	******	U 29.40	U 6.63		*****
FEB 27,81	JAN 30,81	1265.0	29.3		4.26	0.0896	3.15	0.48		0.15
MAR 31,81	FEB 27,81	885.0	40.5		4.45	0.0778	5.60	1.14		1.12
APR 30,81	MAR 31,81	1495.0	31.4		4.36	0.0806	4.30	0.61		0.38
MAY 29,81	APR 30,81	1500.0	50.5		4.09	0.1292	6.15	0.77		0.42
JUN 30,81	MAY 29,81	2330.0	43.2		4.10	0.1160	4.95	0.55		0.20
JUL 31,81	JUN 30,81	2825.0	63.0		3.96	0.1518	7.55	0.78		0.29
AUG 31,81	JUL 31,81	1205.0	70.5		3.88	0.1628	8.55	0.83		0.39
SEP 30,81	AUG 31,81	2690.0	37.0		4.17	0.0970	4.10	0.55		0.18
OCT 30,81	SEP 30,81	1783.0	39.3		4.18	0.1034	4.35	0.77		0.32
NOV 30,81	OCT 30,81	1151.0	33.2		4.23	0.0968	3.65	0.50		0.22
JAN 5,82	NOV 30,81	1560.0	25.9		4.40	0.0842	2.70	0.51		0.34
FEB 2,82	JAN 5,82	1378.0	20.2	U	5.87	0.0494	3.10	0.57		1.09
MAR 2,82	FEB 2,82	607.0	51.5	U	5.00	0.0680	6.50	1.70	U	2.46
MAR 30,82	MAR 2,82	1459.0	50.8		4.10	0.1260	4.85	0.92		0.61
APR 27,82	MAR 30,82	1353.0	32.3	U	6.81	0.0242	5.40	0.70		1.02
MAY 25,82	APR 27,82	499.0	51.9		4.34	0.0814	9.35	1.33		1.32
JUN 22,82	MAY 25,82	2547.0	52.0		3.90	0.1308	5.50	0.70		0.21
JUL 20,82	JUN 22,82	591.0	66.0		3.92	0.1426	8.70	1.09		0.69
AUG 17,82	JUL 20,82	1648.0	63.5		3.79	0.1542	6.95	0.71		0.37
SEP 14,82	AUG 17,82	1211.0	75.5		3.74	0.1848	8.90	1.09		0.50
OCT 12,82	SEP 14,82	3079.0	42.8		4.00	0.1128	4.55	0.08		0.19
NOV 9,82	OCT 12,82	2164.0	27.5		4.22	0.0798	3.00	0.40		0.25
DEC 7,82	NOV 9,82	2052.0	32.5		4.25	0.0812	3.20	0.42		0.14
JAN 4,83	DEC 7,82	1872.0	23.5		4.53	0.0584	2.85	0.50		0.54

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CANBOROUGH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
OCT 2,80	SEP 4,80	0.42	U 2.30	0.145	U 1.120	0.210	U 5.300	U 0.232
OCT 31,80	OCT 2,80	0.22	0.65	0.070	0.030	0.070	0.520	0.005
NOV 28,80	NOV 3,80	0.25	1.30	0.285	0.070	0.060	0.920	0.019
DEC 31,80	NOV 28,80	0.30	0.88	0.075	0.010	0.120	0.620	0.005
JAN 30,81	DEC 31,80	U 7.14	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.23	0.61	0.055	0.010	0.100	0.490	0.008
MAR 31,81	FEB 27,81	0.52	1.68	0.310	0.030	0.230	1.290	0.013
APR 30,81	MAR 31,81	0.22	1.12	0.110	0.040	0.090	0.870	0.020
MAY 29,81	APR 30,81	0.31	1.10	0.130	0.080	0.120	0.930	0.020
JUN 30,81	MAY 29,81	0.14	0.81	0.040	0.060	0.040	0.710	0.015
JUL 31,81	JUN 30,81	0.16	1.02	0.070	0.030	0.010	1.010	0.010
AUG 31,81	JUL 31,81	0.22	1.52	0.075	0.060	0.030	1.320	0.028
SEP 30,81	AUG 31,81	0.04	0.81	0.030	0.010	0.020	0.760	0.010
OCT 30,81	SEP 30,81	0.16	1.25	0.045	0.030	0.020	1.040	0.022
NOV 30,81	OCT 30,81	0.19	0.85	0.045	0.030	0.050	0.670	0.005
JAN 5,82	NOV 30,81	0.26	0.60	0.120	0.030	0.090	0.530	0.038
FEB 2,82	JAN 5,82	0.88	1.33	0.390	0.170	U 0.510	0.530	U 0.155
MAR 2,82	FEB 2,82	U 1.50	1.37	U 0.925	0.065	U 2.550	1.070	0.050
MAR 30,82	MAR 2,82	0.33	1.10	0.115	0.030	0.140	0.980	0.006
APR 27,82	MAR 30,82	0.29	1.23	0.210	0.055	0.105	0.880	0.028
MAY 25,82	APR 27,82	0.31	U 2.50	0.445	0.080	0.060	2.200	0.028
JUN 22,82	MAY 25,82	0.14	0.78	0.060	0.070	0.020	0.680	0.007
JUL 20,82	JUN 22,82	0.23	1.75	0.190	0.120	0.030	1.480	0.017
AUG 17,82	JUL 20,82	0.18	1.10	0.000	0.120	0.020	0.900	0.011
SEP 14,82	AUG 17,82	0.20	1.12	0.135	0.015	0.020	0.980	0.009
OCT 12,82	SEP 14,82	0.15	0.76	0.045	0.050	0.025	0.720	0.080
NOV 9,82	OCT 12,82	0.32	0.50	0.070	0.010	0.070	0.450	0.006
DEC 7,82	NOV 9,82	0.20	0.67	0.045	< 0.005	0.080	0.570	0.005
JAN 4,83	DEC 7,82	0.33	0.74	0.080	0.030	0.160	0.650	0.023

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CANBOROUGH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
OCT 2,80	SEP 4,80	0.003	< 0.001	0.020	0.028	0.001	< 0.002	0.024
OCT 31,80	OCT 2,80	0.008	0.004	0.034	0.070	0.009	< 0.002	0.061
NOV 28,80	NOV 3,80	0.008	< 0.001	< 0.006	0.124	0.019	< 0.002	0.099
DEC 31,80	NOV 28,80	0.004	< 0.001	0.013	0.037	0.009	U 0.002	0.033
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.002	< 0.001	0.008	0.047	0.006	< 0.002	0.065
MAR 31,81	FEB 27,81	0.001	0.002	0.025	0.141	0.014	< 0.002	0.156
APR 30,81	MAR 31,81	0.004	0.001	0.009	0.250	0.006	< 0.002	0.134
MAY 29,81	APR 30,81	0.005	< 0.001	0.009	0.111	0.009	< 0.002	0.049
JUN 30,81	MAY 29,81	0.003	< 0.001	0.007	0.032	0.006	< 0.002	0.016
JUL 31,81	JUN 30,81	0.003	< 0.001	0.006	0.076	0.008	< 0.002	0.057
AUG 31,81	JUL 31,81	0.005	< 0.001	0.009	0.033	0.009	< 0.002	0.032
SEP 30,81	AUG 31,81	0.002	< 0.001	0.004	0.021	0.008	< 0.002	0.014
OCT 30,81	SEP 30,81	0.004	< 0.001	0.011	0.018	0.012	< 0.002	0.031
NOV 30,81	OCT 30,81	0.002	< 0.001	0.011	0.016	0.010	< 0.002	0.008
JAN 5,82	NOV 30,81	0.004	< 0.001	0.008	0.040	0.004	< 0.002	0.018
FEB 2,82	JAN 5,82	0.016	0.002	0.019	0.390	< 0.001	< 0.002	U 0.464
MAR 2,82	FEB 2,82	0.013	0.002	0.023	0.117	0.017	< 0.002	0.069
MAR 30,82	MAR 2,82	0.005	< 0.001	0.007	0.057	0.002	< 0.002	0.091
APR 27,82	MAR 30,82	0.017	< 0.001	0.007	0.144	0.003	< 0.002	0.140
MAY 25,82	APR 27,82	0.012	< 0.001	0.013	0.140	0.015	< 0.002	0.158
JUN 22,82	MAY 25,82	0.003	< 0.001	0.009	0.029	0.006	< 0.002	0.020
JUL 20,82	JUN 22,82	0.006	0.001	U 0.219	0.058	0.010	< 0.002	0.036
AUG 17,82	JUL 20,82	0.004	< 0.001	0.007	0.027	0.003	< 0.002	0.019
SEP 14,82	AUG 17,82	0.005	< 0.001	0.009	0.046	0.009	< 0.002	0.029
OCT 12,82	SEP 14,82	0.002	0.001	0.004	0.025	0.018	< 0.002	0.035
NOV 9,82	OCT 12,82	0.002	< 0.001	0.004	0.020	0.004	< 0.002	0.019
DEC 7,82	NOV 9,82	< 0.001	< 0.001	0.004	0.021	0.005	< 0.002	0.015
JAN 4,83	DEC 7,82	0.002	< 0.001	0.013	0.037	0.006	< 0.002	0.031

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : CANBOROUGH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
OCT 2,80	SEP 4,80	0.011	< 0.0001	U 0.0001
OCT 31,80	OCT 2,80	0.002	0.0002	0.0550
NOV 28,80	NOV 3,80	< 0.006	0.0002	0.0562
DEC 31,80	NOV 28,80	0.004	< 0.0001	0.0550
JAN 30,81	DEC 31,80	*****	******	0.0525
FEB 27,81	JAN 30,81	0.004	0.0001	0.0550
MAR 31,81	FEB 27,81	0.009	U 0.0014	0.0355
APR 30,81	MAR 31,81	0.026	< 0.0001	0.0437
MAY 29,81	APR 30,81	0.010	0.0004	0.0813
JUN 30,81	MAY 29,81	0.001	< 0.0001	0.0794
JUL 31,81	JUN 30,81	0.001	< 0.0001	0.1096
AUG 31,81	JUL 31,81	0.003	0.0002	0.1318
SEP 30,81	AUG 31,81	0.002	0.0002	0.0676
OCT 30,81	SEP 30,81	L 0.001	< 0.0001	0.0661
NOV 30,81	OCT 30,81	0.001	0.0004	0.0589
JAN 5,82	NOV 30,81	0.009	0.0006	0.0398
FEB 2,82	JAN 5,82	< 0.002	< 0.0001	U 0.0013
MAR 2,82	FEB 2,82	0.004	0.0004	U 0.0100
MAR 30,82	MAR 2,82	0.001	0.0002	0.0794
APR 27,82	MAR 30,82	0.002	0.0001	U 0.0002
MAY 25,82	APR 27,82	0.003	< 0.0001	0.0457
JUN 22,82	MAY 25,82	0.001	0.0001	0.1259
JUL 20,82	JUN 22,82	0.006	0.0002	0.1202
AUG 17,82	JUL 20,82	< 0.002	< 0.0001	0.1622
SEP 14,82	AUG 17,82	< 0.002	0.0001	0.1820
OCT 12,82	SEP 14,82	0.001	< 0.0001	0.1000
NOV 9,82	OCT 12,82	0.001	< 0.0001	0.0603
DEC 7,82	NOV 9,82	< 0.001	0.0001	0.0562
JAN 4,83	DEC 7,82	< 0.002	0.0001	0.0295

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DOG'S NEST EAST/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
OCT 1,80	SEP 1,80	****	1301	1	102.1	9	891	3	1	73	ACD	
OCT 31,80	OCT 1,80	1342	1220	1	116.5	9	892	3	1	53	D	
NOV 28,80	OCT 31,80	1220	1230	2	47.2	9	893	3	1	46	D	H
DEC 31,80	NOV 28,80	1240	1235	4	60.0	9	894	3	1	37	CDH	H
JAN 30,81	DEC 31,80	1235	1055	2	12.4	9	895	3	1	24		
FEB 27,81	JAN 30,81	1105	1450	3	104.9	9	896	3	1	26	D	
MAR 31,81	FEB 27,81	1510	1515	3	28.0	9	1930	3	1	21	CF	H
APR 30,81	MAR 31,81	1525	1335	1	107.8	9	1905	3	1	81	AC	
MAY 29,81	APR 30,81	1620	1400	1	47.0	9	39011	3	1	51	ACD	
JUN 30,81	MAY 29,81	1410	910	1	153.0	0	39013	3	1	50	AD	
JUL 31,81	JUN 30,81	920	925	1	62.0	0	39028	3	1	67	A	
AUG 31,81	JUL 31,81	940	1300	1	63.0	0	39047	3	1	62	FJA	
SEP 30,81	AUG 31,81	1310	825	1	156.0	0	39053	3	1	58	ACFJ	
OCT 30,81	SEP 30,81	840	1455	1	71.0	0	39072	3	1	33	ACDFJL	N
NOV 30,81	OCT 30,81	1505	930	1	27.0	0	39081	3	1	96	CDFJA	
JAN 5,82	NOV 30,81	940	1010	4	60.0	0	39092	3	1	73	CD	
FEB 2,82	JAN 5,82	1015	935	2	54.0	0	39103	3	1	51	CD	
MAR 2,82	FEB 2,82	945	900	4	19.0	0	39116	3	1	81	C	
MAR 30,82	MAR 2,82	910	905	4	79.0	0	39122	3	1	68	CD	
APR 27,82	MAR 30,82	910	1025	1	60.0	0	39141	3	1	65	FJC	
MAY 25,82	MAY 5,82	900	815	1	19.5	0	39152	3	1	68	FI	T
JUN 22,82	MAY 25,82	825	900	1	116.5	0	39164	3	1	71	CDF	
JUL 20,82	JUN 22,82	910	850	1	84.0	0	39178	3	1	26	AD	N
AUG 17,82	JUL 20,82	900	740	1	75.0	0	39189	3	1	78	ACD	
SEP 14,82	AUG 17,82	750	805	1	45.0	0	39202	3	1	69	CD	
OCT 12,82	SEP 14,82	815	900	1	141.0	0	39213	3	1	21	C	N
NOV 9,82	OCT 12,82	915	1400	1	106.3	0	39225	3	1	***	ACHG	
DEC 7,82	NOV 9,82	1410	930	3	101.1	0	39237	3	1	78	AC	
JAN 4,83	DEC 7,82	945	1035	4	95.5	0	39241	3	1	***	FGH	N

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DOG'S NEST EAST/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
OCT 1,80	SEP 1,80	2445.0	60.0	3.99	0.1538	7.25	0.76	0.56
OCT 31,80	OCT 1,80	2005.0	29.0	4.40	0.0802	3.80	0.67	0.56
NOV 28,80	OCT 31,80	715.0	43.8	4.70	0.0704	7.50	1.51	U 2.05
DEC 31,80	NOV 28,80	740.0	18.2	4.94	0.0532	2.65	0.58	0.92
JAN 30,81	DEC 31,80	100.0	*****	4.14	******	U 17.00	U 7.80	*****
FEB 27,81	JAN 30,81	915.0	35.7	4.28	0.0938	4.00	0.80	0.33
MAR 31,81	FEB 27,81	200.0	*****	U 7.15	******	U 10.70	U 2.70	U 5.00
APR 30,81	MAR 31,81	2855.0	32.6	4.42	0.0784	4.80	0.69	0.72
MAY 29,81	APR 30,81	780.0	73.5	4.01	0.1604	U 11.20	1.33	U 1.75
JUN 30,81	MAY 29,81	2500.0	44.4	4.18	0.1046	6.00	0.68	0.68
JUL 31,81	JUN 30,81	1355.0	79.0	3.89	0.1758	10.30	1.09	1.25
AUG 31,81	JUL 31,81	1275.0	88.5	3.74	0.2086	9.85	0.95	0.49
SEP 30,81	AUG 31,81	2950.0	52.0	4.10	0.1250	6.80	0.86	0.86
OCT 30,81	SEP 30,81	U 764.0	48.0	4.07	0.1204	4.65	0.73	0.62
NOV 30,81	OCT 30,81	845.0	35.9	4.29	0.1052	3.95	0.69	0.72
JAN 5,82	NOV 30,81	1429.0	28.4	4.28	0.0960	2.70	0.49	0.49
FEB 2,82	JAN 5,82	907.0	24.8	4.43	0.0878	2.90	0.56	0.91
MAR 2,82	FEB 2,82	504.0	61.5	3.91	0.1708	4.80	1.16	0.55
MAR 30,82	MAR 2,82	1762.0	53.5	4.03	0.1358	4.95	0.83	0.41
APR 27,82	MAR 30,82	1271.0	39.1	4.27	0.0888	5.60	0.79	1.10
MAY 25,82	MAY 5,82	434.0	56.1	3.87	0.1306	6.55	0.99	0.87
JUN 22,82	MAY 25,82	2693.0	35.0	4.08	0.0910	3.95	0.57	0.20
JUL 20,82	JUN 22,82	U 730.0	102.0	3.72	0.2120	10.00	1.49	0.78
AUG 17,82	JUL 20,82	1910.0	79.5	3.79	0.1942	8.65	0.79	0.40
SEP 14,82	AUG 17,82	1017.0	75.5	3.73	0.1876	8.70	0.95	0.60
OCT 12,82	SEP 14,82	U 1000.0	45.0	3.93	0.1298	3.95	0.61	0.19
NOV 9,82	OCT 12,82	2301.0	22.5	4.26	0.0764	2.35	0.32	0.26
DEC 7,82	NOV 9,82	2575.0	29.5	4.26	0.0856	2.65	0.34	0.13
JAN 4,83	DEC 7,82	U 1529.0	24.7	4.34	0.0720	2.20	0.39	0.27

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DOG'S NEST EAST/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
OCT 1,80	SEP 1,80	0.24	1.04	0.095	0.140	0.040	0.940	0.061
OCT 31,80	OCT 1,80	0.23	0.87	0.105	0.040	0.090	0.770	0.008
NOV 28,80	OCT 31,80	0.41	2.02	0.390	U 0.390	0.100	1.700	0.088
DEC 31,80	NOV 28,80	0.39	0.75	0.165	0.030	0.160	0.510	0.020
JAN 30,81	DEC 31,80	U 5.28	*****	*****	< 0.010	*****	*****	*****
FEB 27,81	JAN 30,81	0.30	1.17	0.070	0.030	0.140	0.910	0.017
MAR 31,81	FEB 27,81	U 1.05	*****	U 1.000	0.160	U 0.490	U 4.150	*****
APR 30,81	MAR 31,81	0.28	1.25	0.140	0.060	0.120	0.910	0.037
MAY 29,81	APR 30,81	0.87	U 2.22	0.395	0.180	0.210	1.970	0.079
JUN 30,81	MAY 29,81	0.21	1.12	0.110	0.100	0.040	0.980	0.030
JUL 31,81	JUN 30,81	0.28	1.35	0.220	0.140	0.050	1.200	0.050
AUG 31,81	JUL 31,81	0.24	1.02	0.120	0.120	0.030	0.980	0.022
SEP 30,81	AUG 31,81	0.15	1.60	0.110	0.050	0.060	1.060	0.082
OCT 30,81	SEP 30,81	0.58	1.18	0.070	0.100	0.020	0.590	0.070
NOV 30,81	OCT 30,81	0.40	0.81	0.100	0.040	0.080	0.630	0.010
JAN 5,82	NOV 30,81	0.26	0.38	0.065	0.030	0.050	0.262	0.038
FEB 2,82	JAN 5,82	0.34	0.50	0.135	0.040	0.140	0.156	U 0.190
MAR 2,82	FEB 2,82	0.41	0.76	0.075	0.055	0.195	0.490	0.014
MAR 30,82	MAR 2,82	0.28	0.69	0.075	0.025	0.120	0.580	0.003
APR 27,82	MAR 30,82	0.30	0.73	0.185	0.060	0.120	0.580	0.010
MAY 25,82	MAY 5,82	0.21	0.96	0.155	0.045	0.040	0.740	0.033
JUN 22,82	MAY 25,82	0.14	0.93	0.055	0.205	0.025	0.600	0.071
JUL 20,82	JUN 22,82	0.35	1.75	0.165	0.220	0.030	1.140	0.067
AUG 17,82	JUL 20,82	0.22	1.01	0.110	0.105	0.035	0.880	0.013
SEP 14,82	AUG 17,82	0.20	0.81	0.105	0.020	0.025	0.700	0.013
OCT 12,82	SEP 14,82	0.31	0.32	0.030	0.040	0.040	0.280	< 0.002
NOV 9,82	OCT 12,82	0.16	0.29	0.035	0.015	0.060	0.226	0.005
DEC 7,82	NOV 9,82	0.17	0.28	0.020	< 0.005	0.070	0.226	< 0.003
JAN 4,83	DEC 7,82	0.20	0.27	0.065	0.045	0.090	0.196	0.004

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DOG'S NEST EAST/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
OCT 1,80	SEP 1,80	0.005	0.001	< 0.010	0.042	0.006	< 0.002	0.032
OCT 31,80	OCT 1,80	0.008	0.003	0.019	0.080	0.007	< 0.002	0.142
NOV 28,80	OCT 31,80	0.028	0.002	0.015	0.467	0.023	< 0.002	U 0.479
DEC 31,80	NOV 28,80	0.014	< 0.001	0.024	0.288	0.006	< 0.002	0.283
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.010	0.001	0.015	0.221	0.009	< 0.002	0.202
MAR 31,81	FEB 27,81	*****	*****	*****	*****	*****	*****	*****
APR 30,81	MAR 31,81	0.010	0.001	0.008	0.179	0.006	< 0.002	0.192
MAY 29,81	APR 30,81	0.022	0.001	0.023	0.203	0.016	< 0.002	0.156
JUN 30,81	MAY 29,81	0.007	< 0.001	0.009	0.074	0.005	< 0.002	0.057
JUL 31,81	JUN 30,81	0.012	< 0.001	0.014	0.134	0.013	< 0.002	0.117
AUG 31,81	JUL 31,81	0.009	< 0.001	0.017	0.066	0.013	< 0.002	0.051
SEP 30,81	AUG 31,81	0.006	< 0.001	0.009	0.049	0.011	< 0.002	0.033
OCT 30,81	SEP 30,81	0.005	< 0.001	0.017	0.086	0.012	< 0.002	0.078
NOV 30,81	OCT 30,81	0.005	< 0.001	0.011	0.050	0.014	< 0.002	0.033
JAN 5,82	NOV 30,81	0.004	< 0.001	0.005	0.040	0.004	< 0.002	0.018
FEB 2,82	JAN 5,82	0.024	0.002	0.014	0.416	0.005	0.002	U 0.561
MAR 2,82	FEB 2,82	0.008	< 0.001	0.019	0.081	0.014	< 0,002	0.056
MAR 30,82	MAR 2,82	0.006	< 0.001	0.009	0.046	0.005	< 0.002	0.056
APR 27,82	MAR 30,82	0.023	< 0.001	0.003	0.150	0.004	< 0.002	0.132
MAY 25,82	MAY 5,82	0.009	0.001	0.011	0.134	0.022	< 0.002	0.074
JUN 22,82	MAY 25,82	0.007	< 0.001	0.006	0.044	0.004	< 0.002	0.018
JUL 20,82	JUN 22,82	0.009	< 0.001	0.027	0.088	0.010	< 0.002	0.038
AUG 17,82	JUL 20,82	0.004	< 0.001	0.007	0.034	0.010	< 0.002	0.034
SEP 14,82	AUG 17,82	0.007	< 0.001	0.010	0.064	0.009	< 0.002	0.061
OCT 12,82	SEP 14,82	0.002	< 0.001	0.005	0.040	0.010	< 0.002	0.036
NOV 9,82	OCT 12,82	0.002	< 0.001	0.004	0.008	0.005	< 0.002	< 0.007
DEC 7,82	NOV 9,82	< 0.001	< 0.001	0.003	0.015	0.006	< 0.002	0.014
JAN 4,83	DEC 7,82	0.002	< 0.001	0.009	0.029	0.004	< 0.002	0.027

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : DOG'S NEST EAST/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
OCT 1,80	SEP 1,80	0.002	0.0003	0.1023
OCT 31,80	OCT 1,80	0.002	< 0.0001	0.0398
NOV 28,80	OCT 31,80	0.004	0.0006	0.0200
DEC 31,80	NOV 28,80	0.002	< 0.0001	0.0115
JAN 30,81	DEC 31,80	*****	******	0.0724
FEB 27,81	JAN 30,81	0.004	U 0.0017	0.0525
MAR 31,81	FEB 27,81	*****	******	U 0.0001
APR 30,81	MAR 31,81	0.010	< 0.0001	0.0380
MAY 29,81	APR 30,81	0.009	0.0007	0.0977
JUN 30,81	MAY 29,81	0.001	< 0.0001	0.0661
JUL 31,81	JUN 30,81	0.002	0.0002	0.1288
AUG 31,81	JUL 31,81	0.003	0.0002	0.1820
SEP 30,81	AUG 31,81	0.002	0.0002	0.0794
OCT 30,81	SEP 30,81	L 0.002	< 0.0001	0.0851
NOV 30,81	OCT 30,81	0.002	0.0003	0.0513
JAN 5,82	NOV 30,81	0.019	0.0003	0.0525
FEB 2,82	JAN 5,82	< 0.002	< 0.0001	0.0372
MAR 2,82	FEB 2,82	0.007	0.0004	0.1230
MAR 30,82	MAR 2,82	0.002	0.0001	0.0933
APR 27,82	MAR 30,82	0.003	0.0001	0.0537
MAY 25,82	MAY 5,82	0.004	0.0001	0.1349
JUN 22,82	MAY 25,82	0.002	< 0.0001	0.0832
JUL 20,82	JUN 22,82	0.008	0.0002	0.1905
AUG 17,82	JUL 20,82	0.004	0.0002	0.1622
SEP 14,82	AUG 17,82	0.001	< 0.0001	0.1862
OCT 12,82	SEP 14,82	0.002	< 0.0001	0.1175
NOV 9,82	OCT 12,82	0.001	0.0009	0.0550
DEC 7,82	NOV 9,82	< 0.001	< 0.0001	0.0550
JAN 4,83	DEC 7,82	0.001	0.0002	0.0457

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH DUFFERIN/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-HOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
OCT 2,80	SEP 4,80	****	1041	1	82.9	9	915	3	1	45	C	
OCT 31,80	OCT 2,80	1052	1445	1	82.3	9	916	3	1	56	AD	
NOV 28,80	OCT 31,80	1445	1530	2	39.9	9	917	3	1	26	A	
DEC 31,80	NOV 28,80	1545	1415	4	54.7	9	918	3	1	10	C	
JAN 30,81	DEC 31,80	1415	1430	2	13.6	9	919	3	1	15		
FEB 27,81	JAN 30,81	1450	1405	3	83.8	9	920	3	1	18	D	
MAR 31,81	FEB 27,81	1415	1330	3	34.7	9	1926	3	1	69	D	
APR 30,81	MAR 31,81	1340	1250	1	88.1	9	1907	3	1	32	A	
MAY 29,81	APR 30,81	1300	1320	1	61.0	0	39007	3	1	72	AD	
JUN 30,81	MAY 29,81	1330	1315	1	96.0	0	39021	3	1	77	AD	
JUL 31,81	JUN 30,81	1325	1410	1	87.0	0	39036	3	1	75	D	
AUG 31,81	JUL 31,81	1420	1230	1	33.5	0	39043	3	1	78	A	
SEP 30,81	AUG 31,81	1240	1215	1	97.5	0	39051	3	1	78	C	
OCT 30,81	SEP 30,81	1230	1040	1	70.0	0	39068	3	1	92	ACD	
NOV 30,81	OCT 30,81	1055	1315	1	36.0	0	39077	3	1	71	A	
JAN 5,82	NOV 30,81	1325	1235	4	56.0	0	39096	3	1	75	C	
FEB 2,82	JAN 5,82	1335	1405	2	110.0	0	39107	3	1	32	CFJ	N
MAR 2,82	FEB 2,82	1415	1340	4	31.0	0	39119	3	1	54	C	
MAR 30,82	MAR 2,82	1350	1225	4	51.0	0	39123	3	1	70	C	
APR 27,82	MAR 30,82	1230	1455	1	63.0	0	39142	3	1	74	FJC	
MAY 25,82	APR 27,82	1500	1230	1	32.0	0	39156	3	1	77	AC	
JUN 22,82	MAY 25,82	1240	1215	1	105.0	0	39168	3	1	77	CD	
JUL 20,82	JUN 27,82	1225	1250	1	23.0	0	39180	3	1	***	GH	N
AUG 17,82	JUL 20,82	1300	1130	1	51.0	0	39192	3	1	***	GH	N
SEP 14,82	AUG 17,82	1140	1035	1	46.0	0	39201	3	1	75	AC	
OCT 12,82	SEP 14,82	1045	1400	1	136.0	0	39215	3	1	83	AC	
NOV 9,82	OCT 12,82	1415	1314	1	85.3	0	39218	3	1	79	C	
DEC 7,82	NOV 9,82	1325	1255	3	80.7	0	39238	3	1	76	AC	
JAN 4,83	DEC 7,82	1305	1425	4	72.6	0	39245	3	1	***	GHAC	

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH DUFFERIN/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
OCT 2,80	SEP 4,80	1215.0	57.0	3.90	0.1572	6.10	0.72	0.46
OCT 31,80	OCT 2,80	1515.0	28.9	4.33	0.0868	3.40	0.60	0.48
NOV 28,80	OCT 31,80	340.0	*****	4.80	0.0786	7.10	1.26	1.45
DEC 31,80	NOV 28,80	180.0	47.5	5.04	******	*****	*****	U 4.15
JAN 30,81	DEC 31,80	70.0	*****	3.82	******	*****	*****	*****
FEB 27,81	JAN 30,81	505.0	36.2	4.15	0.1094	3.25	0.49	0.15
MAR 31,81	FEB 27,81	780.0	39.2	4.43	0.0834	5.95	1.06	U 1.49
APR 30,81	MAR 31,81	935.0	33.6	4.27	0.0904	4.25	0.59	0.63
MAY 29,81	APR 30,81	1430.0	54.5	3.99	0.1478	6.40	0.77	0.52
JUN 30,81	MAY 29,81	2420.0	36.2	4.11	0.1030	3.95	0.44	0.23
JUL 31,81	JUN 30,81	2135.0	64.5	3.89	0.1664	6.80	0.70	0.31
AUG 31,81	JUL 31,81	855.0	U 108.0	3.64	0.2580	11.70	1.12	0.49
SEP 30,81	AUG 31,81	2490.0	47.2	4.02	0.1238	4.40	0.55	0.30
OCT 30,81	SEP 30,81	2103.0	41.6	4.08	0.1178	4.40	0.61	0.44
NOV 30,81	OCT 30,81	833.0	39.5	4.14	0.1048	4.25	0.60	0.42
JAN 5,82	NOV 30,81	1365.0	26.8	4.25	0.0902	2.35	0.44	0.24
FEB 2,82	JAN 5,82	U 1163.0	21.0	4.52	0.0738	2.60	0.49	0.73
MAR 2,82	FEB 2,82	553.0	56.1	3.96	0.1526	4.75	1.02	0.66
MAR 30,82	MAR 2,82	1165.0	57.0	4.03	0.1418	4.95	0.88	0.54
APR 27,82	MAR 30,82	1525.0	34.0	4.34	0.0736	5.10	0.65	0.92
MAY 25,82	APR 27,82	809.0	34.7	5.06	0.0452	6.55	0.97	0.97
JUN 22,82	MAY 25,82	2645.0	57.0	3.84	0.1510	5.45	0.70	0.24
JUL 20,82	JUN 27,82	U 120.0	*****	3.66	******	> 10.00	U 2.08	U 2.35
AUG 17,82	JUL 20,82	U 89.0	64.0	3.89	0.1632	7.55	0.73	*****
SEP 14,82	AUG 17,82	1124.0	66.5	3.78	0.1696	7.40	0.85	0.31
OCT 12,82	SEP 14,82	3680.0	39.5	3.99	0.1146	3.65	0.54	0.14
NOV 9,82	OCT 12,82	2201.0	23.8	4.27	0.0716	2.70	0.36	0.30
DEC 7,82	NOV 9,82	1998.0	30.9	4.16	0.0846	3.00	0.34	0.14
JAN 4,83	DEC 7,82	1410.0	22.4	4.41	0.0670	2.00	0.28	0.16

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH DUFFERIN/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
OCT 2,80	SEP 4,80	0.20	0.62	0.090	0.060	0.040	0.540	0.004
OCT 31,80	OCT 2,80	0.23	1.45	0.075	0.110	0.090	0.620	0.079
NOV 28,80	OCT 31,80	0.44	U 3.50	0.230	U 0.310	0.150	1.900	U 0.198
DEC 31,80	NOV 28,80	*****	*****	U 0.625	0.060	0.250	0.880	*****
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.29	0.51	0.040	0.030	0.080	0.322	0.009
MAR 31,81	FEB 27,81	0.41	1.39	0.300	0.030	0.160	1.010	0.016
APR 30,81	MAR 31,81	0.23	0.65	0.125	0.020	0.060	0.560	0.006
MAY 29,81	APR 30,81	0.28	0.82	0.145	0.070	0.100	0.640	0.024
JUN 30,81	MAY 29,81	0.09	0.52	0.060	0.030	0.020	0.470	0.004
JUL 31,81	JUN 30,81	0.15	0.60	0.075	0.030	0.010	0.590	0.008
AUG 31,81	JUL 31,81	0.28	2.00	0.140	0.090	0.020	1.050	U 0.155
SEP 30,81	AUG 31,81	0.77	0.44	0.055	0.010	0.020	0.410	0.005
OCT 30,81	SEP 30,81	0.18	1.05	0.045	0.110	0.020	0.450	0.020
NOV 30,81	OCT 30,81	0.28	0.76	0.075	0.020	0.060	0.600	0.005
JAN 5,82	NOV 30,81	0.19	0.35	0.055	0.030	0.030	0.302	0.040
FEB 2,82	JAN 5,82	0.32	0.65	0.155	0.030	0.130	0.232	0.072
MAR 2,82	FEB 2,82	0.52	0.61	0.100	0.040	0.115	0.480	0.012
MAR 30,82	MAR 2,82	0.36	0.49	0.095	0.030	0.130	0.770	0.006
APR 27,82	MAR 30,82	0.26	0.68	0.195	0.030	0.100	0.530	0.023
MAY 25,82	APR 27,82	0.26	U 3.30	0.285	U 0.435	0.035	1.740	0.065
JUN 22,82	MAY 25,82	0.16	0.63	0.050	0.050	0.020	0.510	0.005
JUL 20,82	JUN 27,82	0.48	*****	U 0.475	0.190	0.080	1.540	*****
AUG 17,82	JUL 20,82	0.15	*****	*****	*****	*****	0.860	*****
SEP 14,82	AUG 17,82	0.19	0.76	0.085	0.040	0.025	0.690	0.016
OCT 12,82	SEP 14,82	0.15	0.50	0.030	0.010	<W 0.005	0.310	0.010
NOV 9,82	OCT 12,82	0.17	0.43	0.050	< 0.005	0.055	0.352	< 0.001
DEC 7,82	NOV 9,82	0.23	0.35	0.030	< 0.005	0.090	0.300	< 0.002
JAN 4,83	DEC 7,82	0.36	0.35	0.050	0.015	0.045	0.242	0.016

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH DUFFERIN/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
OCT 2,80	SEP 4,80	0.004	< 0.001	0.024	0.048	0.006	< 0.002	0.032
OCT 31,80	OCT 2,80	0.005	< 0.001	0.009	0.059	0.006	< 0.002	0.029
NOV 28,80	OCT 31,80	*****	*****	*****	*****	*****	*****	*****
DEC 31,80	NOV 28,80	*****	*****	*****	*****	*****	*****	*****
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.005	< 0.001	0.021	0.146	0.010	< 0.002	0.190
MAR 31,81	FEB 27,81	0.014	< 0.001	0.028	0.186	0.011	< 0.002	0.161
APR 30,81	MAR 31,81	0.006	0.001	0.010	0.119	0.008	< 0.002	0.078
MAY 29,81	APR 30,81	0.004	0.001	0.008	0.068	0.009	< 0.002	0.040
JUN 30,81	MAY 29,81	0.003	0.002	0.014	0.038	0.005	< 0.002	0.033
JUL 31,81	JUN 30,81	0.004	< 0.001	0.008	0.057	0.011	< 0.002	0.060
AUG 31,81	JUL 31,81	0.009	< 0.001	0.013	0.065	0.011	< 0.002	0.040
SEP 30,81	AUG 31,81	0.003	< 0.001	0.005	0.028	0.009	< 0.002	0.018
OCT 30,81	SEP 30,81	0.003	< 0.001	0.008	0.039	0.008	< 0.002	0.033
NOV 30,81	OCT 30,81	0.003	< 0.001	0.012	0.029	0.014	< 0.002	0.025
JAN 5,82	NOV 30,81	0.002	< 0.001	0.008	0.026	0.006	< 0.002	0.010
FEB 2,82	JAN 5,82	U 0.041	0.001	0.015	U 0.957	0.006	< 0.002	U 1.211
MAR 2,82	FEB 2,82	0.009	< 0.001	0.031	0.083	0.013	< 0.002	0.057
MAR 30,82	MAR 2,82	0.005	< 0.001	0.011	0.048	0.005	< 0.002	0.065
APR 27,82	MAR 30,82	0.017	< 0.001	0.002	0.109	0.003	< 0.002	0.098
MAY 25,82	APR 27,82	0.010	< 0.001	0.011	0.101	0.006	< 0.002	0.081
JUN 22,82	MAY 25,82	0.004	< 0.001	0.005	0.025	0.007	< 0.002	0.022
JUL 20,82	JUN 27,82	*****	*****	*****	*****	*****	*****	*****
AUG 17,82	JUL 20,82	*****	*****	*****	*****	*****	*****	*****
SEP 14,82	AUG 17,82	0.004	< 0.001	0.012	0.043	0.006	< 0.002	0.026
OCT 12,82	SEP 14,82	0.002	< 0.001	0.004	0.022	0.005	< 0.002	0.018
NOV 9,82	OCT 12,82	0.002	< 0.001	0.004	0.016	0.003	< 0.002	0.012
DEC 7,82	NOV 9,82	< 0.001	< 0.001	0.004	0.019	0.005	< 0.002	0.018
JAN 4,83	DEC 7,82	0.001	< 0.001	0.003	0.011	0.001	< 0.002	0.015

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH BUFFERIN/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
OCT 2,80	SEP 4,80	0.002	0.0002	0.1289
OCT 31,80	OCT 2,80	0.006	< 0.0001	0.0468
NOV 28,80	OCT 31,80	*****	******	0.0158
DEC 31,80	NOV 28,80	*****	******	0.0091
JAN 30,81	DEC 31,80	*****	******	0.1514
FEB 27,81	JAN 30,81	0.008	0.0002	0.0708
MAR 31,81	FEB 27,81	0.002	< 0.0001	0.0372
APR 30,81	MAR 31,81	0.022	< 0.0001	0.0537
MAY 29,81	APR 30,81	0.007	0.0002	0.1023
JUN 30,81	MAY 29,81	< 0.001	< 0.0001	0.0776
JUL 31,81	JUN 30,81	0.002	0.0002	0.1288
AUG 31,81	JUL 31,81	0.002	0.0003	0.2291
SEP 30,81	AUG 31,81	0.001	< 0.0001	0.0955
OCT 30,81	SEP 30,81	L< 0.001	0.0001	0.0832
NOV 30,81	OCT 30,81	0.002	0.0004	0.0724
JAN 5,82	NOV 30,81	0.008	0.0002	0.0562
FEB 2,82	JAN 5,82	< 0.002	< 0.0001	0.0302
MAR 2,82	FEB 2,82	0.004	0.0003	0.1096
MAR 30,82	MAR 2,82	0.001	0.0001	0.0933
APR 27,82	MAR 30,82	0.002	0.0001	0.0457
MAY 25,82	APR 27,82	< 0.002	< 0.0001	0.0087
JUN 22,82	MAY 25,82	0.001	< 0.0001	0.1445
JUL 20,82	JUN 27,82	*****	******	0.2188
AUG 17,82	JUL 20,82	*****	******	0.1288
SEP 14,82	AUG 17,82	< 0.002	< 0.0001	0.1660
OCT 12,82	SEP 14,82	0.001	< 0.0001	0.1023
NOV 9,82	OCT 12,82	< 0.001	< 0.0001	0.0537
DEC 7,82	NOV 9,82	< 0.002	< 0.0001	0.0692
JAN 4,83	DEC 7,82	< 0.002	< 0.0001	0.0389

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTH CANFIELD/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
OCT 2,80	SEP 5,80	****	1450	1	92.3	9	897	3	1	46	A	
OCT 31,80	OCT 2,80	1459	1530	1	94.9	9	898	3	1	63	D	
NOV 28,80	OCT 31,80	1530	1410	2	43.3	9	899	3	1	32	D	
DEC 31,80	NOV 28,80	1425	1110	4	55.2	9	900	3	1	20	C	
JAN 30,81	DEC 31,80	1110	1215	4	14.7	9	901	3	1	13		
FEB 27,81	JAN 30,81	1225	1130	3	88.3	9	902	3	1	52	D	
MAR 31,81	FEB 27,81	1135	1110	3	31.3	9	1929	3	1	84	C	
APR 30,81	MAR 31,81	1120	1125	1	96.6	9	1906	3	1	***	GAC	
MAY 29,81	APR 30,81	1135	1020	1	58.0	0	39001	3	1	71	ACD	
JUN 30,81	MAY 29,81	1030	1050	1	101.0	0	39015	3	1	80	D	
JUL 31,81	JUN 30,81	1100	1125	1	79.0	0	39030	3	1	78	D	
AUG 31,81	JUL 31,81	1135	1030	1	72.0	0	39037	3	1	***	AGH	N
SEP 30,81	AUG 31,81	1030	955	1	71.0	0	39057	3	1	101	ACD	
OCT 30,81	SEP 30,81	1015	1350	1	59.0	0	39070	3	1	***	ACG	
NOV 30,81	OCT 30,81	1400	1020	1	35.0	0	39075	3	1	77	CA	
JAN 5,82	NOV 30,81	1030	1105	4	68.0	0	39093	3	1	65	CD	
FEB 2,82	JAN 5,82	1120	1105	2	75.0	0	39105	3	1	36	CD	NH
MAR 2,82	FEB 2,82	1115	1030	4	34.0	0	39115	3	1	29	CDF	N
MAR 30,82	MAR 2,82	1040	1020	4	69.0	0	39126	3	1	65	CD	
APR 27,82	MAR 30,82	1030	1130	1	79.0	0	39143	3	1	30	AC	N
MAY 25,82	APR 27,82	1140	935	1	21.0	0	39154	3	1	84	ACFI	
JUN 22,82	MAY 25,82	945	955	1	121.0	0	39163	3	1	77	C	T
JUL 20,82	JUN 22,82	1005	1035	1	40.0	0	39177	3	1	62	DFI	
AUG 17,82	JUL 20,82	1045	915	1	83.0	0	39191	3	1	43	C	NT
SEP 14,82	AUG 17,82	925	845	1	62.0	0	39204	3	1	77	AC	
OCT 12,82	SEP 14,82	855	1200	1	143.0	0	39211	3	1	85	AC	
NOV 9,82	OCT 12,82	1215	1043	1	99.4	0	39227	3	1	80	ACD	
DEC 7,82	NOV 9,82	1055	1045	3	89.4	0	39235	3	1	73	AC	
JAN 4,83	DEC 7,82	1045	1215	4	100.4	0	39244	3	1	***	GCH	

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTH CANFIELD/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
OCT 2,80	SEP 5,80	1400.0	64.0	3.88	0.1686	7.25	0.80	0.53
OCT 31,80	OCT 2,80	1955.0	36.9	4.14	0.1056	3.90	0.65	0.49
NOV 28,80	OCT 31,80	450.0	44.6	4.16	0.0966	5.40	1.06	1.28
DEC 31,80	NOV 28,80	370.0	25.4	4.52	0.0728	3.95	0.56	0.83
JAN 30,81	DEC 31,80	65.0	U 149.0	U 7.03	******	U 17.00	U 6.24	*****
FEB 27,81	JAN 30,81	1515.0	34.5	4.18	0.1012	3.20	0.54	0.30
MAR 31,81	FEB 27,81	855.0	43.0	4.39	0.0878	5.85	1.27	1.44
APR 30,81	MAR 31,81	1435.0	30.3	4.32	0.0844	4.20	0.60	0.57
MAY 29,81	APR 30,81	1350.0	61.0	3.96	0.1578	6.45	0.74	0.43
JUN 30,81	MAY 29,81	2630.0	49.0	4.02	0.1372	5.30	0.56	0.23
JUL 31,81	JUN 30,81	2025.0	69.0	3.88	0.1760	7.15	0.73	0.28
AUG 31,81	JUL 31,81	U 960.0	69.0	3.80	0.1830	7.00	0.76	0.32
SEP 30,81	AUG 31,81	2350.0	48.2	4.04	0.1306	4.95	0.60	0.26
OCT 30,81	SEP 30,81	******	*****	*****	******	*****	*****	*****
NOV 30,81	OCT 30,81	884.0	37.5	4.22	0.1128	4.20	0.57	0.48
JAN 5,82	NOV 30,81	1447.0	22.2	4.56	0.0644	2.75	0.48	0.80
FEB 2,82	JAN 5,82	U 896.0	23.5	U 5.82	0.0560	4.10	0.78	U 1.93
MAR 2,82	FEB 2,82	U 329.0	*****	3.88	0.1772	7.35	1.61	1.15
MAR 30,82	MAR 2,82	1466.0	54.2	4.05	0.1358	4.50	0.92	0.68
APR 27,82	MAR 30,82	U 793.0	37.7	4.32	0.0872	5.50	0.69	0.94
MAY 25,82	APR 27,82	574.0	40.8	4.22	0.0838	5.65	0.77	0.96
JUN 22,82	MAY 25,82	3059.0	60.5	3.80	0.1494	5.35	0.70	0.15
JUL 20,82	JUN 22,82	815.0	72.0	3.79	0.1746	8.05	0.91	0.53
AUG 17,82	JUL 20,82	U 1183.0	61.0	3.77	0.1592	6.35	0.64	0.31
SEP 14,82	AUG 17,82	1560.0	72.5	3.76	0.1834	7.75	0.97	0.43
OCT 12,82	SEP 14,82	3982.0	41.0	4.01	0.1144	3.95	0.62	0.19
NOV 9,82	OCT 12,82	2611.0	27.5	4.16	0.0860	2.75	0.33	0.20
DEC 7,82	NOV 9,82	2140.0	31.1	4.28	0.0880	2.90	0.36	0.14
JAN 4,83	DEC 7,82	2161.0	26.2	4.28	0.0756	2.15	0.42	0.34

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTH CANFIELD/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
OCT 2,80	SEP 5,80	0.23	U 1.80	0.130	U 0.170	0.040	0.780	0.095
OCT 31,80	OCT 2,80	0.26	0.56	0.130	0.040	0.080	0.410	0.020
NOV 28,80	OCT 31,80	0.31	1.21	0.330	0.050	0.100	0.880	0.010
DEC 31,80	NOV 28,80	0.37	0.74	0.350	0.030	0.160	0.460	0.010
JAN 30,81	DEC 31,80	U 14.70	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.26	0.35	0.110	0.020	0.130	0.254	0.003
MAR 31,81	FEB 27,81	0.49	1.44	0.415	0.040	0.200	1.120	0.021
APR 30,81	MAR 31,81	0.26	0.96	0.150	0.060	0.080	0.630	0.033
MAY 29,81	APR 30,81	0.33	0.82	0.130	0.060	0.100	0.620	0.022
JUN 30,81	MAY 29,81	0.17	0.68	0.055	0.040	0.050	0.610	0.015
JUL 31,81	JUN 30,81	0.20	0.70	0.070	0.020	0.040	0.650	0.020
AUG 31,81	JUL 31,81	0.18	0.80	0.070	0.050	0.020	0.630	0.020
SEP 30,81	AUG 31,81	0.09	0.59	0.055	0.080	0.030	0.460	0.022
OCT 30,81	SEP 30,81	*****	*****	*****	*****	*****	*****	*****
NOV 30,81	OCT 30,81	0.32	0.70	0.150	0.030	0.130	0.550	0.007
JAN 5,82	NOV 30,81	0.41	0.25	0.230	0.030	0.220	0.206	0.035
FEB 2,82	JAN 5,82	U 0.91	0.93	0.520	0.070	U 0.470	0.184	U 0.183
MAR 2,82	FEB 2,82	U 1.04	*****	0.370	0.060	U 0.950	0.740	*****
MAR 30,82	MAR 2,82	0.33	0.74	0.165	0.025	0.145	0.570	0.011
APR 27,82	MAR 30,82	0.33	1.18	0.230	0.045	0.105	0.610	0.049
MAY 25,82	APR 27,82	0.18	0.98	0.330	0.045	0.035	0.700	0.030
JUN 22,82	MAY 25,82	0.16	0.49	0.040	0.025	0.015	0.460	<W 0.001
JUL 20,82	JUN 22,82	0.22	1.02	0.155	0.045	0.015	0.870	0.008
AUG 17,82	JUL 20,82	0.14	0.69	0.060	0.095	0.015	0.570	< 0.002
SEP 14,82	AUG 17,82	0.17	0.68	0.125	0.015	0.020	0.620	0.014
OCT 12,82	SEP 14,82	0.13	0.68	0.050	0.080	0.030	0.440	U 0.180
NOV 9,82	OCT 12,82	0.26	0.40	0.050	0.010	0.050	0.234	0.005
DEC 7,82	NOV 9,82	0.24	0.28	0.050	< 0.005	0.110	0.220	< 0.003
JAN 4,83	DEC 7,82	0.25	0.32	0.050	0.035	0.130	0.204	0.006

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTH CANFIELD/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
OCT 2,80	SEP 5,80	0.006	< 0.001	0.010	0.048	0.006	< 0.002	0.038
OCT 31,80	OCT 2,80	0.008	< 0.001	0.019	0.048	< 0.008	< 0.002	0.044
NOV 28,80	OCT 31,80	*****	*****	*****	*****	*****	*****	*****
DEC 31,80	NOV 28,80	*****	*****	*****	*****	*****	*****	*****
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.006	0.002	0.014	0.049	0.007	< 0.002	0.046
MAR 31,81	FEB 27,81	0.013	0.002	0.028	0.158	0.017	< 0.002	0.122
APR 30,81	MAR 31,81	0.007	0.003	0.012	0.148	0.011	< 0.002	0.161
MAY 29,81	APR 30,81	0.004	< 0.001	0.007	0.072	0.009	< 0.002	0.069
JUN 30,81	MAY 29,81	0.002	< 0.001	L 0.003	0.027	0.005	< 0.002	0.019
JUL 31,81	JUN 30,81	0.003	< 0.001	0.006	0.040	0.009	< 0.002	0.051
AUG 31,81	JUL 31,81	0.005	< 0.001	0.011	0.063	0.008	< 0.002	0.047
SEP 30,81	AUG 31,81	0.003	< 0.001	0.006	0.084	0.011	< 0.002	0.020
OCT 30,81	SEP 30,81	*****	*****	*****	*****	*****	*****	*****
NOV 30,81	OCT 30,81	0.004	< 0.001	0.012	0.030	0.016	< 0.002	0.020
JAN 5,82	NOV 30,81	0.003	< 0.001	0.003	0.041	0.004	< 0.002	0.011
FEB 2,82	JAN 5,82	0.003	0.002	0.005	0.152	0.008	< 0.002	0.158
MAR 2,82	FEB 2,82	*****	*****	*****	*****	*****	*****	*****
MAR 30,82	MAR 2,82	0.005	< 0.001	0.008	0.064	0.006	< 0.002	0.094
APR 27,82	MAR 30,82	0.022	< 0.001	0.005	0.202	0.004	< 0.002	0.205
MAY 25,82	APR 27,82	0.009	< 0.001	0.015	0.102	0.009	< 0.002	0.057
JUN 22,82	MAY 25,82	0.003	< 0.001	0.004	0.013	0.009	< 0.002	0.015
JUL 20,82	JUN 22,82	0.005	< 0.001	0.011	0.038	0.011	< 0.002	0.038
AUG 17,82	JUL 20,82	0.003	< 0.001	0.030	0.041	0.002	< 0.002	0.021
SEP 14,82	AUG 17,82	0.003	< 0.001	0.007	0.032	0.008	< 0.002	0.023
OCT 12,82	SEP 14,82	0.002	< 0.001	0.004	0.034	0.007	< 0.002	0.023
NOV 9,82	OCT 12,82	0.002	< 0.001	0.004	0.016	0.005	< 0.002	0.015
DEC 7,82	NOV 9,82	< 0.001	< 0.001	0.002	0.014	0.006	< 0.002	0.013
JAN 4,83	DEC 7,82	0.002	< 0.001	0.004	0.051	0.007	< 0.002	0.022

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTH CANFIELD/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
OCT 2,80	SEP 5,80	0.007	< 0.0001	0.1318
OCT 31,80	OCT 2,80	< 0.002	< 0.0001	0.0724
NOV 28,80	OCT 31,80	*****	******	0.0692
DEC 31,80	NOV 28,80	*****	******	0.0302
JAN 30,81	DEC 31,80	*****	******	U 0.0001
FEB 27,81	JAN 30,81	0.004	0.0002	0.0661
MAR 31,81	FEB 27,81	0.008	0.0004	0.0407
APR 30,81	MAR 31,81	0.017	0.0002	0.0479
MAY 29,81	APR 30,81	0.004	0.0002	0.1096
JUN 30,81	MAY 29,81	0.001	< 0.0001	0.0955
JUL 31,81	JUN 30,81	0.002	< 0.0001	0.1318
AUG 31,81	JUL 31,81	0.003	0.0002	0.1585
SEP 30,81	AUG 31,81	0.001	0.0002	0.0912
OCT 30,81	SEP 30,81	*****	******	******
NOV 30,81	OCT 30,81	0.002	0.0004	0.0603
JAN 5,82	NOV 30,81	0.007	< 0.0001	0.0275
FEB 2,82	JAN 5,82	0.002	< 0.0001	U 0.0015
MAR 2,82	FEB 2,82	*****	******	0.1318
MAR 30,82	MAR 2,82	0.002	0.0001	0.0891
APR 27,82	MAR 30,82	0.002	0.0001	0.0479
MAY 25,82	APR 27,82	0.003	< 0.0001	0.0603
JUN 22,82	MAY 25,82	0.001	< 0.0001	0.1585
JUL 20,82	JUN 22,82	0.002	0.0001	0.1622
AUG 17,82	JUL 20,82	0.002	< 0.0001	0.1698
SEP 14,82	AUG 17,82	< 0.002	< 0.0001	0.1738
OCT 12,82	SEP 14,82	0.001	< 0.0001	0.0977
NOV 9,82	OCT 12,82	0.001	< 0.0010	0.0692
DEC 7,82	NOV 9,82	< 0.001	< 0.0001	0.0525
JAN 4,83	DEC 7,82	0.001	< 0.0001	0.0525

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : VILLA NOVA/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
OCT 2,80	SEP 3,80	****	948	1	92.6	9	903	3	1	58	C	
OCT 31,80	OCT 2,80	1003	1345	1	103.9	9	904	3	1	50	AD	
NOV 28,80	OCT 31,80	1345	1705	2	43.8	9	905	3	1	***	A	
DEC 31,80	NOV 28,80	1715	1315	4	59.5	9	906	3	1	30	C	
JAN 30,81	DEC 31,80	1315	1010	2	11.3	9	907	3	1	35		
FEB 27,81	JAN 30,81	1020	1450	3	100.3	9	908	3	1	41	C	HC
MAR 31,81	FEB 27,81	1500	1425	3	31.5	9	1928	3	1	79	C	HM
APR 30,81	MAR 31,81	1435	1035	1	99.2	9	1902	3	1	72	AC	
MAY 29,81	APR 30,81	1045	1400	1	49.0	0	39009	3	1	70	CD	
JUN 30,81	MAY 29,81	1410	1400	1	101.0	9	39023	3	1	68	DFI	
JUL 31,81	JUN 30,81	1410	1450	1	72.0	0	39034	3	1	81	AD	
AUG 31,81	JUL 31,81	1500	1325	1	61.0	0	39045	3	1	91	A	
SEP 30,81	AUG 31,81	1335	1330	1	111.0	0	39049	3	1	80	AC	
OCT 30,81	SEP 30,81	1340	940	1	70.0	0	39067	3	1	97	ACD	
NOV 30,81	OCT 30,81	950	1350	1	35.0	0	39079	3	1	85	A	
JAN 5,82	NOV 30,81	1400	1405	4	55.0	0	39095	3	1	72	CD	
FEB 2,82	JAN 5,82	1415	1500	2	60.0	0	39104	3	1	43	CD	NH
MAR 2,82	FEB 2,82	1515	1430	4	38.0	0	39118	3	1	57	C	
MAR 30,82	MAR 2,82	1445	1300	4	64.0	0	39121	3	1	71	CD	
APR 27,82	MAR 30,82	1305	1550	1	58.0	0	39139	3	1	81	AC	
MAY 25,82	APR 27,82	1555	1310	1	22.5	0	39153	3	1	75	ACD	
JUN 22,82	MAY 25,82	1320	1240	1	122.5	0	39167	3	1	77	ACD	
JUL 20,82	JUN 22,82	1250	1340	1	33.0	0	39176	3	1	65	D	
AUG 17,82	JUL 20,82	1850	1225	1	74.0	0	39190	3	1	75	ACFJ	T
SEP 14,82	AUG 17,82	1235	1110	1	51.0	0	39200	3	1	24	C	N
OCT 12,82	SEP 14,82	1120	1450	1	124.0	0	39216	3	1	***	CGH	
NOV 9,82	OCT 12,82	1505	1400	1	79.0	0	39220	3	1	91	ACD	
DEC 7,82	NOV 9,82	1425	1340	3	71.7	0	39240	3	1	97	AC	
JAN 4,83	DEC 7,82	1540	1510	4	78.4	0	39242	3	1	92	FC	

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : VILLA NOVA/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
OCT 2,80	SEP 3,80	1765.0	44.7	4.01	0.1236	4.55	0.56	0.29
OCT 31,80	OCT 2,80	1705.0	19.4	4.62	0.0728	2.60	0.45	0.27
NOV 28,80	OCT 31,80	******	46.8	4.22	0.0998	5.55	1.25	1.17
DEC 31,80	NOV 28,80	580.0	31.4	4.29	0.1240	3.30	0.64	0.48
JAN 30,81	DEC 31,80	130.0	U 98.0	4.00	******	U 9.90	U 3.09	1.00
FEB 27,81	JAN 30,81	1340.0	25.0	3.97	0.1566	6.90	0.64	0.69
MAR 31,81	FEB 27,81	815.0	38.3	4.30	0.0916	5.10	1.01	1.09
APR 30,81	MAR 31,81	2345.0	34.2	4.19	0.0934	4.00	0.59	0.37
MAY 29,81	APR 30,81	1120.0	70.0	3.86	0.1856	7.50	0.87	0.48
JUN 30,81	MAY 29,81	2230.0	38.9	4.10	0.1090	4.20	0.70	0.19
JUL 31,81	JUN 30,81	1915.0	68.0	3.89	0.1770	7.40	0.81	0.27
AUG 31,81	JUL 31,81	1810.0	90.0	3.68	0.2328	9.05	0.93	0.35
SEP 30,81	AUG 31,81	2900.0	47.0	4.00	******	4.65	0.62	*****
OCT 30,81	SEP 30,81	2214.0	49.9	4.08	0.1122	3.75	0.59	0.28
NOV 30,81	OCT 30,81	972.0	35.8	4.19	0.0994	3.40	0.56	0.24
JAN 5,82	NOV 30,81	1298.0	27.5	4.27	0.0906	2.00	0.32	0.28
FEB 2,82	JAN 5,82	U 847.0	25.6	U 6.18	0.0780	4.55	0.59	U 2.80
MAR 2,82	FEB 2,82	712.0	45.2	4.00	0.1352	3.15	0.88	0.40
MAR 30,82	MAR 2,82	1495.0	60.0	3.98	0.1586	4.40	0.95	0.43
APR 27,82	MAR 30,82	1528.0	43.4	4.14	0.1072	5.35	0.69	0.66
MAY 25,82	APR 27,82	555.0	55.7	4.07	0.1188	7.65	1.15	1.20
JUN 22,82	MAY 25,82	3089.0	33.1	U 6.92	0.0390	6.40	0.74	0.26
JUL 20,82	JUN 22,82	698.0	92.0	3.74	0.3020	9.25	1.34	0.87
AUG 17,82	JUL 20,82	1813.0	67.0	3.74	0.1646	7.60	0.76	0.50
SEP 14,82	AUG 17,82	U 398.0	61.0	3.84	0.1494	7.70	0.90	0.65
OCT 12,82	SEP 14,82	2966.0	46.8	3.90	0.1346	4.25	0.70	0.21
NOV 9,82	OCT 12,82	2335.0	18.2	4.54	0.0582	2.55	0.37	0.40
DEC 7,82	NOV 9,82	2267.0	31.0	4.21	0.0812	3.10	0.37	0.14
JAN 4,83	DEC 7,82	2346.0	25.2	4.25	0.0762	2.00	0.40	0.14

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : VILLA NOVA/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
OCT 2,80	SEP 3,80	0.13	0.53	0.045	0.030	0.030	0.430	0.002
OCT 31,80	OCT 2,80	0.78	0.96	0.060	0.120	0.110	0.720	0.057
NOV 28,80	OCT 31,80	0.32	2.02	0.175	0.160	0.100	1.500	0.069
DEC 31,80	NOV 28,80	0.50	0.77	0.105	0.220	0.210	0.460	0.019
JAN 30,81	DEC 31,80	U 2.17	*****	0.510	0.010	U 0.970	*****	*****
FEB 27,81	JAN 30,81	0.39	U 2.84	0.110	U 0.580	U 0.600	1.040	U 0.300
MAR 31,81	FEB 27,81	0.35	1.24	0.210	0.020	0.120	0.092	0.020
APR 30,81	MAR 31,81	0.22	0.65	0.070	0.020	0.090	0.560	0.006
MAY 29,81	APR 30,81	0.31	0.76	0.105	0.050	0.100	0.600	0.014
JUN 30,81	MAY 29,81	0.11	0.64	0.035	0.030	0.020	0.570	0.002
JUL 31,81	JUN 30,81	0.17	0.85	0.065	0.040	0.040	0.790	0.018
AUG 31,81	JUL 31,81	0.25	0.92	0.070	0.050	0.020	0.750	0.012
SEP 30,81	AUG 31,81	0.10	*****	*****	*****	*****	0.440	*****
OCT 30,81	SEP 30,81	0.16	0.54	0.040	0.030	0.020	0.450	0.007
NOV 30,81	OCT 30,81	0.22	0.68	0.040	0.070	0.090	0.510	0.013
JAN 5,82	NOV 30,81	0.24	0.28	0.060	0.030	0.040	0.220	0.028
FEB 2,82	JAN 5,82	0.52	U 4.40	0.375	0.240	U 0.440	0.150	U 0.150
MAR 2,82	FEB 2,82	0.30	0.45	0.070	0.015	0.115	0.342	0.008
MAR 30,82	MAR 2,82	0.39	0.75	0.075	0.015	0.090	0.690	0.001
APR 27,82	MAR 30,82	0.26	0.86	0.110	0.045	0.090	0.600	0.020
MAY 25,82	APR 27,82	0.26	1.56	0.260	0.080	0.060	1.150	0.052
JUN 22,82	MAY 25,82	0.25	U 4.40	0.065	U 0.715	0.090	U 2.800	U 0.320
JUL 20,82	JUN 22,82	0.28	1.41	0.190	0.160	0.035	0.990	0.030
AUG 17,82	JUL 20,82	0.18	0.96	0.110	0.140	0.035	0.800	0.004
SEP 14,82	AUG 17,82	0.29	1.06	0.135	0.160	0.085	0.780	0.020
OCT 12,82	SEP 14,82	0.20	0.31	0.040	0.030	0.030	0.420	0.004
NOV 9,82	OCT 12,82	0.16	0.88	0.100	0.050	0.070	0.510	0.042
DEC 7,82	NOV 9,82	0.23	0.40	0.030	0.025	0.105	0.336	< 0.002
JAN 4,83	DEC 7,82	0.14	0.34	0.030	0.020	0.050	0.248	0.012

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : VILLA NOVA/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
OCT 2,80	SEP 3,80	0.003	< 0.001	0.018	0.025	0.006	< 0.002	0.020
OCT 31,80	OCT 2,80	0.005	< 0.001	0.031	0.060	0.004	< 0.002	0.035
NOV 28,80	OCT 31,80	*****	*****	*****	*****	*****	*****	*****
DEC 31,80	NOV 28,80	< 0.001	< 0.001	0.035	0.221	0.014	< 0.002	0.206
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.008	0.001	0.023	0.101	0.004	< 0.002	0.094
MAR 31,81	FEB 27,81	0.013	< 0.001	0.023	0.153	0.006	< 0.002	0.161
APR 30,81	MAR 31,81	0.004	< 0.001	0.006	0.068	0.006	< 0.002	0.089
MAY 29,81	APR 30,81	0.006	< 0.001	0.009	0.091	0.011	< 0.002	0.061
JUN 30,81	MAY 29,81	0.002	< 0.001	0.004	0.031	0.004	< 0.002	0.022
JUL 31,81	JUN 30,81	< 0.001	0.004	0.012	0.088	0.012	< 0.002	0.083
AUG 31,81	JUL 31,81	0.004	< 0.001	0.009	0.029	0.011	< 0.002	0.028
SEP 30,81	AUG 31,81	0.003	< 0.001	0.005	0.027	0.011	< 0.002	0.017
OCT 30,81	SEP 30,81	0.002	< 0.001	0.008	0.027	0.007	< 0.002	0.020
NOV 30,81	OCT 30,81	0.003	< 0.001	0.008	0.026	0.011	< 0.002	0.016
JAN 5,82	NOV 30,81	0.003	0.003	0.005	0.045	0.004	< 0.002	0.030
FEB 2,82	JAN 5,82	U 0.176	0.001	0.032	U 6.073	0.004	U 0.008	U 5.532
MAR 2,82	FEB 2,82	0.005	< 0.001	0.007	0.040	0.017	< 0.002	0.033
MAR 30,82	MAR 2,82	0.004	< 0.001	0.008	0.034	0.007	< 0.002	0.042
APR 27,82	MAR 30,82	0.014	< 0.001	0.002	0.090	0.004	< 0.002	0.079
MAY 25,82	APR 27,82	0.017	< 0.001	0.019	0.149	0.009	< 0.002	0.118
JUN 22,82	MAY 25,82	0.004	< 0.001	0.010	0.038	0.005	< 0.002	0.025
JUL 20,82	JUN 22,82	0.008	< 0.001	U 0.109	0.091	0.014	< 0.002	0.058
AUG 17,82	JUL 20,82	0.005	< 0.001	0.010	0.034	0.004	< 0.002	0.022
SEP 14,82	AUG 17,82	0.006	< 0.001	0.019	0.118	0.009	< 0.002	0.075
OCT 12,82	SEP 14,82	0.003	< 0.001	L 0.005	L 0.025	0.013	< 0.002	L 0.022
NOV 9,82	OCT 12,82	0.003	< 0.001	0.004	0.027	0.004	< 0.002	0.021
DEC 7,82	NOV 9,82	< 0.001	< 0.001	0.003	0.020	0.006	< 0.002	0.016
JAN 4,83	DEC 7,82	0.001	< 0.001	0.003	0.018	0.003	< 0.002	0.021

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : VILLA NOVA/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
OCT 2,80	SEP 3,80	0.002	0.0001	0.0977
OCT 31,80	OCT 2,80	0.002	< 0.0001	0.0240
NOV 28,80	OCT 31,80	*****	******	0.0603
DEC 31,80	NOV 28,80	0.008	< 0.0001	0.0513
JAN 30,81	DEC 31,80	*****	******	0.1000
FEB 27,81	JAN 30,81	0.003	< 0.0001	0.1072
MAR 31,81	FEB 27,81	0.003	< 0.0001	0.0501
APR 30,81	MAR 31,81	0.010	< 0.0001	0.0646
MAY 29,81	APR 30,81	0.008	0.0002	0.1380
JUN 30,81	MAY 29,81	0.001	< 0.0001	0.0794
JUL 31,81	JUN 30,81	0.003	0.0001	0.1288
AUG 31,81	JUL 31,81	0.002	0.0002	0.2089
SEP 30,81	AUG 31,81	0.002	< 0.0001	0.1000
OCT 30,81	SEP 30,81	L< 0.001	< 0.0001	0.0832
NOV 30,81	OCT 30,81	0.002	0.0003	0.0646
JAN 5,82	NOV 30,81	0.016	0.0001	0.0537
FEB 2,82	JAN 5,82	0.006	< 0.0001	U 0.0007
MAR 2,82	FEB 2,82	0.004	0.0002	0.1000
MAR 30,82	MAR 2,82	0.003	< 0.0001	0.1047
APR 27,82	MAR 30,82	0.002	0.0001	0.0724
MAY 25,82	APR 27,82	0.003	< 0.0001	0.0851
JUN 22,82	MAY 25,82	0.002	< 0.0001	U 0.0001
JUL 20,82	JUN 22,82	0.003	0.0001	0.1820
AUG 17,82	JUL 20,82	< 0.002	< 0.0001	0.1820
SEP 14,82	AUG 17,82	0.003	0.0002	0.1445
OCT 12,82	SEP 14,82	L< 0.001	< 0.0001	0.1259
NOV 9,82	OCT 12,82	< 0.001	< 0.0001	0.0288
DEC 7,82	NOV 9,82	< 0.001	< 0.0001	0.0617
JAN 4,83	DEC 7,82	< 0.001	< 0.0001	0.0562

PART IV

SUDBURY REGION

CUMULATIVE PRECIPITATION CHEMISTRY LISTINGS

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BURNASH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-HOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
JUL 4,80	MAY 28,80	****	****	1	77.0	0	2188	3	1	82		
JUL 30,80	JUL 4,80	****	****	1	86.8	9	2191	3	1	82		
SEP 2,80	JUL 30,80	****	****	1	104.7	9	2193	3	1	91		
SEP 30,80	SEP 2,80	1030	900	1	140.0	0	933	3	1	***	DHG	N
OCT 31,80	SEP 30,80	900	930	1	67.0	0	934	3	1	83	HI	
NOV 29,80	OCT 31,80	930	1030	2	52.0	0	935	3	1	7	CDHFI	N
DEC 31,80	DEC 1,80	1030	945	2	29.0	0	936	3	1	66		
JAN 30,81	DEC 31,80	945	930	2	14.0	0	937	3	1	***	HG	
FEB 27,81	JAN 30,81	930	925	2	62.0	0	938	3	1	101		
MAR 31,81	FEB 27,81	925	915	1	33.0	0	1923	3	1	86	CD	
APR 30,81	MAR 31,81	915	1130	1	34.0	0	1919	3	1	254	CDH	N
MAY 29,81	APR 30,81	1130	930	1	42.0	0	11193	3	1	87	D	
JUN 30,81	MAY 29,81	930	915	1	116.0	0	11196	3	1	82	CD	
JUL 31,81	JUN 30,81	915	930	1	32.0	0	11197	3	1	82	D	
AUG 31,81	JUL 31,81	930	930	1	84.0	0	11199	3	1	80	ACD	
SEP 30,81	AUG 31,81	930	1400	1	146.0	0	11201	3	1	82	C	
OCT 30,81	SEP 30,81	1400	1030	1	94.0	0	11203	3	1	***	DGH	N
NOV 30,81	OCT 30,81	1030	1030	4	41.0	0	11205	3	1	65	D	
JAN 5,82	NOV 30,81	1030	1000	4	55.0	0	11207	3	1	90	C	
FEB 2,82	JAN 5,82	1000	930	4	22.0	0	11209	3	1	***	CGH	
MAR 2,82	FEB 2,82	930	945	4	25.0	0	11211	3	1	70		
MAR 30,82	MAR 2,82	945	945	4	42.0	0	11213	3	1	79	CD	
APR 27,82	MAR 30,82	945	1000	1	64.0	0	11215	3	1	104	CD	
MAY 25,82	APR 27,82	1000	****	1	19.0	0	11300	3	1	88		HT
JUN 22,82	MAY 25,82	1030	1155	1	73.0	0	11328	3	1	82		
JUL 20,82	JUN 22,82	1155	1200	1	25.0	0	11338	3	1	69		
AUG 17,82	JUL 20,82	1200	1015	1	23.0	0	11362	3	1	62		
SEP 14,82	AUG 17,82	1015	830	1	140.0	0	11402	3	1	***	AG	
OCT 12,82	SEP 14,82	830	1315	1	95.0	0	11409	3	1	77		
NOV 9,82	OCT 12,82	1315	1005	1	22.8	0	11445	3	1	109		
DEC 7,82	NOV 9,82	1105	1000	4	128.7	0	11459	3	1	69		
JAN 5,83	DEC 7,82	1000	900	4	53.1	0	11478	3	1	82		

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BURWASH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME mL	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
JUL 4,80	MAY 28,80	2075.0	26.5	4.23	0.0832	3.10	0.33	0.24
JUL 30,80	JUL 4,80	2325.0	32.7	4.13	0.0910	3.25	0.32	0.16
SEP 2,80	JUL 30,80	3110.0	27.0	4.12	0.0838	2.90	0.25	0.11
SEP 30,80	SEP 2,80	U 993.0	37.8	4.03	0.1172	4.00	0.37	0.27
OCT 31,80	SEP 30,80	1815.0	52.0	3.98	0.1488	5.90	0.58	0.40
NOV 29,80	OCT 31,80	U 120.0	*****	4.53	******	1.50	0.32	0.20
DEC 31,80	DEC 1,80	630.0	29.5	4.27	0.0904	2.25	0.45	0.09
JAN 30,81	DEC 31,80	280.0	44.0	4.23	******	3.30	0.95	0.25
FEB 27,81	JAN 30,81	2050.0	31.0	4.11	0.0904	1.95	0.62	0.05
MAR 31,81	FEB 27,81	925.0	33.7	4.34	0.0872	4.40	0.68	0.60
APR 30,81	MAR 31,81	2805.0	30.2	4.32	0.0806	3.95	0.54	0.59
MAY 29,81	APR 30,81	1195.0	36.2	4.08	0.1168	4.20	0.40	0.38
JUN 30,81	MAY 29,81	3090.0	45.6	4.05	0.1256	4.80	0.67	0.27
JUL 31,81	JUN 30,81	860.0	51.5	3.98	0.1354	5.40	0.46	0.17
AUG 31,81	JUL 31,81	2190.0	33.8	4.16	0.1012	4.00	0.31	0.17
SEP 30,81	AUG 31,81	3910.0	28.4	4.25	0.0932	2.85	0.34	0.08
OCT 30,81	SEP 30,81	U 1441.0	25.2	4.32	0.0808	2.15	0.30	0.06
NOV 30,81	OCT 30,81	868.0	32.7	4.16	0.1264	2.95	0.47	0.12
JAN 5,82	NOV 30,81	1608.0	26.5	4.28	0.0804	1.75	0.54	0.09
FEB 2,82	JAN 5,82	610.0	39.8	4.16	0.1012	2.00	0.80	0.20
MAR 2,82	FEB 2,82	574.0	18.5	4.41	0.0748	1.10	0.31	0.04
MAR 30,82	MAR 2,82	1088.0	45.6	4.07	0.1198	3.15	0.74	0.17
APR 27,82	MAR 30,82	2163.0	35.5	4.23	0.0946	4.00	0.62	0.48
MAY 25,82	APR 27,82	544.0	60.0	3.84	0.1394	7.60	0.47	0.74
JUN 22,82	MAY 25,82	1948.0	40.7	4.09	0.1026	4.20	0.42	0.09
JUL 20,82	JUN 22,82	563.0	38.5	4.25	0.0958	5.40	0.50	0.33
AUG 17,82	JUL 20,82	466.0	35.8	4.12	0.1092	4.25	0.47	0.17
SEP 14,82	AUG 17,82	3379.0	13.5	4.49	0.0464	1.45	0.14	0.10
OCT 12,82	SEP 14,82	2396.0	53.0	3.91	0.1494	5.20	0.78	0.23
NOV 9,82	OCT 12,82	812.0	35.5	4.05	0.0952	3.75	0.48	0.25
DEC 7,82	NOV 9,82	2917.0	36.8	4.08	0.0986	2.75	0.65	0.10
JAN 5,83	DEC 7,82	1422.0	42.8	4.07	0.1152	3.25	0.88	0.26

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
API03 - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BURNASH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
JUL 4,80	MAY 28,80	0.08	*****	0.040	0.040	0.030	0.282	*****
JUL 30,80	JUL 4,80	0.04	*****	0.025	0.020	< 0.010	0.254	*****
SEP 2,80	JUL 30,80	0.08	*****	0.015	0.010	0.020	0.230	*****
SEP 30,80	SEP 2,80	0.16	0.38	0.025	0.070	0.070	0.310	0.007
OCT 31,80	SEP 30,80	0.17	0.66	0.060	0.040	0.070	0.490	0.007
NOV 29,80	OCT 31,80	0.28	*****	0.035	0.050	0.180	*****	*****
DEC 31,80	DEC 1,80	0.63	0.42	0.015	0.020	0.440	0.200	0.002
JAN 30,81	DEC 31,80	U 1.51	0.58	0.060	U 0.180	U 1.350	0.360	0.006
FEB 27,81	JAN 30,81	0.23	0.32	0.010	0.020	0.150	0.182	0.003
MAR 31,81	FEB 27,81	0.39	0.98	0.090	0.060	0.240	0.810	0.006
APR 30,81	MAR 31,81	0.18	0.58	0.085	0.100	0.100	0.540	0.021
MAY 29,81	APR 30,81	0.08	0.44	0.075	0.020	0.060	0.380	0.017
JUN 30,81	MAY 29,81	0.14	0.62	0.080	0.050	0.040	0.600	0.015
JUL 31,81	JUN 30,81	0.18	0.62	0.100	0.040	0.110	0.400	0.010
AUG 31,81	JUL 31,81	0.08	0.52	0.030	0.040	0.020	0.450	0.006
SEP 30,81	AUG 31,81	0.04	0.44	0.005	0.030	0.020	0.344	0.023
OCT 30,81	SEP 30,81	0.10	0.19	0.015	0.050	0.060	0.168	0.004
NOV 30,81	OCT 30,81	0.20	0.35	0.040	0.020	0.150	0.280	0.006
JAN 5,82	NOV 30,81	0.62	0.35	0.005	0.010	0.530	0.228	0.004
FEB 2,82	JAN 5,82	U 1.70	0.24	0.030	0.060	U 1.450	0.192	0.001
MAR 2,82	FEB 2,82	0.47	0.24	0.010	0.020	0.320	0.204	0.005
MAR 30,82	MAR 2,82	0.39	0.46	0.045	0.030	0.250	0.410	0.005
APR 27,82	MAR 30,82	0.14	0.33	0.045	0.025	0.060	0.480	0.015
MAY 25,82	APR 27,82	0.18	1.02	0.145	0.055	0.075	0.910	0.018
JUN 22,82	MAY 25,82	0.02	0.48	0.025	0.065	0.015	0.380	0.010
JUL 20,82	JUN 22,82	0.15	U 2.55	0.090	U 0.235	0.030	0.870	U 0.235
AUG 17,82	JUL 20,82	0.07	0.75	0.040	0.080	0.020	0.590	0.009
SEP 14,82	AUG 17,82	0.05	0.16	0.005	0.005	0.005	0.138	< 0.001
OCT 12,82	SEP 14,82	0.15	0.54	0.045	0.045	0.060	0.600	0.004
NOV 9,82	OCT 12,82	0.15	0.36	0.035	0.040	0.070	0.310	0.005
DEC 7,82	NOV 9,82	0.28	0.40	0.005	< 0.005	0.155	0.390	0.011
JAN 5,83	DEC 7,82	0.74	0.49	0.070	0.040	0.385	0.394	0.009

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BURNASH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
JUL 4,80	MAY 28,80	*****	0.005	L 0.007	0.054	0.007	*****	0.018
JUL 30,80	JUL 4,80	*****	< 0.001	L 0.004	0.021	0.004	*****	0.034
SEP 2,80	JUL 30,80	*****	< 0.001	L 0.002	0.021	0.008	*****	0.009
SEP 30,80	SEP 2,80	0.002	0.003	0.005	0.057	0.009	< 0.002	0.046
OCT 31,80	SEP 30,80	0.004	0.014	0.011	0.125	0.018	< 0.002	0.059
NOV 29,80	OCT 31,80	*****	*****	*****	*****	*****	*****	*****
DEC 31,80	DEC 1,80	0.002	0.006	U 0.097	0.065	0.014	< 0.002	0.035
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.001	0.003	0.030	0.038	0.005	< 0.002	0.018
MAR 31,81	FEB 27,81	0.001	0.004	L 0.008	L 0.020	0.004	< 0.002	L 0.023
APR 30,81	MAR 31,81	U 0.013	0.002	0.015	0.262	0.007	< 0.002	U 0.288
MAY 29,81	APR 30,81	0.004	0.002	0.007	0.072	0.007	< 0.002	0.029
JUN 30,81	MAY 29,81	0.004	0.008	0.015	0.083	0.007	< 0.002	0.057
JUL 31,81	JUN 30,81	0.002	< 0.001	0.060	0.168	0.011	< 0.002	0.036
AUG 31,81	JUL 31,81	0.006	0.006	0.010	0.151	0.014	< 0.002	0.086
SEP 30,81	AUG 31,81	U 0.024	< 0.001	0.003	0.020	0.006	< 0.002	0.021
OCT 30,81	SEP 30,81	0.001	0.003	0.018	0.023	0.003	< 0.002	0.007
NOV 30,81	OCT 30,81	0.002	0.002	0.033	0.097	0.012	< 0.002	0.021
JAN 5,82	NOV 30,81	< 0.001	0.001	0.005	0.016	0.010	< 0.002	0.011
FEB 2,82	JAN 5,82	0.003	0.008	0.035	0.207	0.013	< 0.002	0.083
MAR 2,82	FEB 2,82	0.001	< 0.001	0.008	0.046	0.008	< 0.002	0.013
MAR 30,82	MAR 2,82	0.002	0.002	0.033	0.046	0.010	< 0.002	0.058
APR 27,82	MAR 30,82	0.006	< 0.001	0.005	0.092	0.007	< 0.002	0.134
MAY 25,82	APR 27,82	0.005	0.001	0.007	0.117	0.011	0.002	0.108
JUN 22,82	MAY 25,82	0.002	0.001	0.003	0.024	0.005	< 0.002	< 0.008
JUL 20,82	JUN 22,82	0.007	< 0.001	0.013	0.068	0.006	< 0.002	0.054
AUG 17,82	JUL 20,82	0.003	< 0.001	0.024	0.094	0.008	< 0.002	0.054
SEP 14,82	AUG 17,82	0.001	< 0.001	< 0.003	0.007	0.005	U 0.020	< 0.006
OCT 12,82	SEP 14,82	0.002	< 0.001	0.006	0.044	0.011	< 0.002	0.029
NOV 9,82	OCT 12,82	0.003	< 0.001	0.008	0.064	0.012	< 0.002	0.045
DEC 7,82	NOV 9,82	0.001	< 0.001	0.007	0.018	0.010	< 0.002	0.012
JAN 5,83	DEC 7,82	0.003	< 0.001	0.012	0.069	0.012	< 0.002	0.045

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : BURWASH/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
JUL 4,80	MAY 28,80	L 0.007	0.0004	0.0589
JUL 30,80	JUL 4,80	L< 0.001	< 0.0001	0.0741
SEP 2,80	JUL 30,80	L 0.003	0.0004	0.0759
SEP 30,80	SEP 2,80	0.004	0.0001	0.0933
OCT 31,80	SEP 30,80	0.021	0.0005	0.1047
NOV 29,80	OCT 31,80	*****	******	0.0295
DEC 31,80	DEC 1,80	0.024	0.0003	0.0537
JAN 30,81	DEC 31,80	*****	******	0.0589
FEB 27,81	JAN 30,81	0.006	0.0004	0.0776
MAR 31,81	FEB 27,81	L 0.006	0.0002	0.0457
APR 30,81	MAR 31,81	0.006	0.0010	0.0479
MAY 29,81	APR 30,81	0.008	0.0003	0.0832
JUN 30,81	MAY 29,81	0.004	< 0.0001	0.0891
JUL 31,81	JUN 30,81	0.004	0.0002	0.1047
AUG 31,81	JUL 31,81	0.011	0.0005	0.0692
SEP 30,81	AUG 31,81	0.002	0.0001	0.0562
OCT 30,81	SEP 30,81	0.008	0.0004	0.0479
NOV 30,81	OCT 30,81	0.010	0.0006	0.0692
JAN 5,82	NOV 30,81	< 0.002	< 0.0001	0.0525
FEB 2,82	JAN 5,82	0.010	< 0.0001	0.0692
MAR 2,82	FEB 2,82	0.007	0.0002	0.0389
MAR 30,82	MAR 2,82	0.003	0.0002	0.0851
APR 27,82	MAR 30,82	0.003	0.0002	0.0589
MAY 25,82	APR 27,82	0.003	0.0001	0.1445
JUN 22,82	MAY 25,82	0.002	< 0.0001	0.0813
JUL 20,82	JUN 22,82	0.002	0.0001	0.0562
AUG 17,82	JUL 20,82	< 0.003	< 0.0001	0.0759
SEP 14,82	AUG 17,82	0.001	< 0.0001	0.0324
OCT 12,82	SEP 14,82	0.001	< 0.0001	0.1230
NOV 9,82	OCT 12,82	0.008	0.0001	0.0891
DEC 7,82	NOV 9,82	0.001	0.0004	0.0832
JAN 5,83	DEC 7,82	0.001	0.0002	0.0851

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : HANNER/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
JUL 4,80	MAY 28,80	****	****	1	69.0	0	2199	3	1	66		
JUL 31,80	JUL 4,80	****	****	1	80.3	9	2197	3	1	115	A	
SEP 2,80	JUL 31,80	****	****	1	97.7	9	2198	3	1	72	A	C
SEP 30,80	SEP 2,80	840	1000	1	128.0	0	945	3	1	54	D	
OCT 31,80	SEP 30,80	1000	1130	1	28.0	0	946	3	1	***	HG	N
NOV 28,80	OCT 31,80	1130	1000	2	22.0	0	947	3	1	72	D	
DEC 31,80	NOV 28,80	1000	945	2	21.0	0	948	3	1	***	HG	N
JAN 30,81	DEC 31,80	945	1100	2	7.0	0	949	3	1	***	CHG	N
FEB 27,81	JAN 30,81	1100	1055	2	28.0	0	950	3	1	57		
MAR 31,81	FEB 27,81	1055	1100	1	20.0	0	1921	3	1	69	CD	
APR 30,81	MAR 31,81	1100	1000	1	88.0	0	1914	3	1	98	CD	
MAY 29,81	APR 30,81	1000	1130	1	20.0	0	11241	3	1	68	CD	HCM
JUN 30,81	MAY 29,81	1130	1130	1	96.0	0	11244	3	1	64	ACD	
JUL 31,81	JUN 30,81	1130	1200	1	17.0	0	11245	3	1	***	CD	
AUG 31,81	JUL 31,81	1200	1030	1	67.0	0	11247	3	1	75	ACD	
SEP 30,81	AUG 31,81	1030	1000	1	138.0	0	11249	3	1	***	ADGH	
OCT 30,81	SEP 30,81	1000	930	1	85.0	0	11251	3	1	50	D	
NOV 30,81	OCT 30,81	930	915	4	36.6	9	11253	3	1	33	CD	
JAN 5,82	NOV 30,81	915	1230	4	76.4	9	11255	3	1	***	CDGH	
FEB 2,82	JAN 5,82	1230	1120	4	24.0	9	11257	3	1	15	D	
MAR 2,82	FEB 2,82	1120	1115	4	29.4	9	11259	3	1	18	CD	
MAR 30,82	MAR 2,82	1115	1215	4	34.2	9	11261	3	1	44	CD	
APR 27,82	MAR 30,82	1215	1430	1	61.0	0	11263	3	1	67	ACD	
MAY 25,82	APR 27,82	1430	1400	1	16.0	0	11294	3	1	68		
JUN 22,82	MAY 25,82	1400	1030	1	47.0	0	11330	3	1	73		
JUL 20,82	JUN 22,82	1030	950	1	25.0	0	11346	3	1	89		
AUG 17,82	JUL 20,82	950	1130	1	29.0	0	11366	3	1	33		NH
SEP 14,82	AUG 17,82	1130	1020	1	112.0	0	11397	3	1	80	A	
OCT 12,82	SEP 14,82	1020	1110	1	105.0	0	11405	3	1	79		
NOV 9,82	OCT 12,82	1110	1115	4	40.3	0	11449	3	1	58		
DEC 7,82	NOV 9,82	1115	1400	4	66.4	0	11455	3	1	74		
JAN 4,83	DEC 7,82	1400	1400	4	49.0	0	11483	3	1	***	FJG	

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : HANMER/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
JUL 4,80	MAY 28,80	1485.0	44.0	4.01	0.1206	5.45	0.42	0.32
JUL 31,80	JUL 4,80	3005.0	26.0	4.23	0.0818	2.75	0.18	0.09
SEP 2,80	JUL 31,80	2305.0	29.5	4.09	0.1130	3.85	0.21	0.07
SEP 30,80	SEP 2,80	2248.0	39.5	4.14	0.0946	3.00	0.21	0.20
OCT 31,80	SEP 30,80	1150.0	41.6	4.09	0.1246	4.20	0.60	0.44
NOV 28,80	OCT 31,80	515.0	43.5	4.11	0.1194	4.30	0.99	0.57
DEC 31,80	NOV 28,80	U 160.0	48.5	4.10	******	4.70	0.77	*****
JAN 30,81	DEC 31,80	U 60.0	*****	4.03	******	5.15	U 1.57	*****
FEB 27,81	JAN 30,81	520.0	57.0	3.99	0.1378	4.80	0.84	0.14
MAR 31,81	FEB 27,81	450.0	54.0	4.31	0.0988	6.55	0.76	0.82
APR 30,81	MAR 31,81	2825.0	31.4	4.28	0.0868	4.25	0.49	0.48
MAY 29,81	APR 30,81	445.0	80.0	3.87	0.1994	12.60	0.89	U 9.97
JUN 30,81	MAY 29,81	2010.0	58.0	3.94	0.1508	7.10	0.56	0.46
JUL 31,81	JUN 30,81	******	*****	4.28	******	> 10.00	> 2.00	*****
AUG 31,81	JUL 31,81	1640.0	42.5	3.99	0.1324	5.70	0.31	0.19
SEP 30,81	AUG 31,81	2935.0	32.0	4.23	0.0914	3.55	0.22	0.08
OCT 30,81	SEP 30,81	1395.0	25.0	4.26	0.0880	2.25	0.34	0.12
NOV 30,81	OCT 30,81	396.0	45.0	4.10	0.1438	4.40	0.63	0.29
JAN 5,82	NOV 30,81	482.0	28.2	4.35	0.0778	1.85	0.58	0.13
FEB 2,82	JAN 5,82	124.0	*****	3.90	******	5.10	1.20	0.33
MAR 2,82	FEB 2,82	175.0	44.2	4.05	******	3.25	0.65	0.11
MAR 30,82	MAR 2,82	496.0	41.8	4.14	0.1038	3.00	0.66	0.13
APR 27,82	MAR 30,82	1341.0	40.5	4.12	0.1072	4.40	0.60	0.43
MAY 25,82	APR 27,82	354.0	70.0	4.26	0.0690	14.10	0.88	U 4.35
JUN 22,82	MAY 25,82	1116.0	32.1	4.20	0.0812	4.70	0.40	0.18
JUL 20,82	JUN 22,82	726.0	42.1	4.03	0.1082	4.55	0.56	0.47
AUG 17,82	JUL 20,82	U 315.0	14.2	5.51	0.0562	2.65	0.22	0.11
SEP 14,82	AUG 17,82	2945.0	8.0	5.10	0.0326	1.30	0.19	0.05
OCT 12,82	SEP 14,82	2711.0	39.9	4.01	0.1176	4.05	0.43	0.17
NOV 9,82	OCT 12,82	771.0	35.0	4.08	0.0920	4.20	0.50	0.37
DEC 7,82	NOV 9,82	1598.0	25.6	4.30	0.0760	1.90	0.44	0.06
JAN 4,83	DEC 7,82	******	*****	*****	******	*****	*****	*****

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : HANMER/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
JUL 4,80	MAY 28,80	0.10	*****	0.045	0.080	0.040	0.410	*****
JUL 31,80	JUL 4,80	0.03	*****	< 0.025	0.020	0.020	0.196	*****
SEP 2,80	JUL 31,80	0.10	*****	0.015	0.070	0.030	0.400	*****
SEP 30,80	SEP 2,80	0.07	0.29	0.020	0.010	0.020	0.268	0.001
OCT 31,80	SEP 30,80	0.12	0.65	0.075	0.040	0.110	0.420	0.009
NOV 28,80	OCT 31,80	U 0.86	1.08	0.110	0.050	U 0.690	0.790	0.011
DEC 31,80	NOV 28,80	U 1.27	0.80	*****	*****	*****	0.390	0.008
JAN 30,81	DEC 31,80	U 3.58	*****	*****	*****	*****	0.560	*****
FEB 27,81	JAN 30,81	U 0.74	0.77	0.015	0.030	U 0.790	0.400	0.006
MAR 31,81	FEB 27,81	U 3.00	1.35	0.145	0.050	U 2.550	1.070	0.010
APR 30,81	MAR 31,81	0.14	0.54	0.080	0.090	0.070	0.500	0.007
MAY 29,81	APR 30,81	U 1.42	1.28	U 0.290	U 0.760	0.190	1.000	U 0.080
JUN 30,81	MAY 29,81	0.14	1.02	0.100	U 0.210	0.050	0.540	U 0.098
JUL 31,81	JUN 30,81	U 0.97	*****	*****	*****	*****	U 3.250	*****
AUG 31,81	JUL 31,81	0.08	0.01	0.040	0.040	0.020	0.520	0.006
SEP 30,81	AUG 31,81	0.08	0.43	0.005	0.040	0.080	0.346	0.016
OCT 30,81	SEP 30,81	0.05	0.22	0.035	0.020	0.020	0.210	0.007
NOV 30,81	OCT 30,81	U 0.98	0.54	0.070	0.050	U 0.730	0.420	0.009
JAN 5,82	NOV 30,81	U 1.50	0.36	0.015	0.010	U 1.250	0.246	0.005
FEB 2,82	JAN 5,82	U 3.69	*****	0.070	0.110	U 3.080	0.450	*****
MAR 2,82	FEB 2,82	U 1.15	*****	0.015	0.050	U 0.885	*****	*****
MAR 30,82	MAR 2,82	U 0.68	0.45	0.075	0.020	U 0.655	0.372	0.006
APR 27,82	MAR 30,82	0.20	0.88	0.040	< 0.010	0.105	0.480	0.038
MAY 25,82	APR 27,82	U 3.11	1.09	U 0.845	U 0.300	U 1.250	0.860	0.017
JUN 22,82	MAY 25,82	0.03	1.43	0.060	U 0.370	0.040	0.610	U 0.120
JUL 20,82	JUN 22,82	0.14	0.54	0.080	0.070	0.030	0.364	0.015
AUG 17,82	JUL 20,82	0.13	U 2.85	0.035	U 0.195	0.070	0.940	U 0.170
SEP 14,82	AUG 17,82	0.07	0.79	0.010	0.070	0.010	0.460	0.037
OCT 12,82	SEP 14,82	0.06	0.43	0.025	0.030	0.045	0.386	< 0.001
NOV 9,82	OCT 12,82	0.14	0.52	0.080	0.095	0.100	0.440	0.018
DEC 7,82	NOV 9,82	0.16	0.28	0.005	< 0.005	0.075	0.236	0.011
JAN 4,83	DEC 7,82	*****	*****	*****	*****	*****	*****	*****

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : HANMER/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
JUL 4,80	MAY 28,80	*****	0.002	L 0.017	0.103	0.006	*****	0.041
JUL 31,80	JUL 4,80	*****	0.002	L 0.003	0.036	0.004	*****	0.029
SEP 2,80	JUL 31,80	*****	0.009	L 0.009	0.045	0.008	*****	0.012
SEP 30,80	SEP 2,80	0.002	0.005	0.002	0.019	0.009	< 0.002	0.007
OCT 31,80	SEP 30,80	0.006	0.013	0.015	0.106	0.017	< 0.002	0.055
NOV 28,80	OCT 31,80	*****	*****	0.008	*****	*****	*****	*****
DEC 31,80	NOV 28,80	*****	*****	*****	*****	*****	*****	*****
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.005	U 0.046	U 0.055	0.144	0.032	< 0.002	0.025
MAR 31,81	FEB 27,81	*****	*****	*****	*****	*****	*****	*****
APR 30,81	MAR 31,81	0.009	0.004	0.009	0.095	0.006	< 0.002	0.103
MAY 29,81	APR 30,81	*****	*****	*****	*****	*****	*****	*****
JUN 30,81	MAY 29,81	0.008	0.021	0.016	0.289	0.012	< 0.002	0.182
JUL 31,81	JUN 30,81	*****	*****	*****	*****	*****	*****	*****
AUG 31,81	JUL 31,81	0.008	< 0.001	0.012	0.082	0.001	< 0.002	0.089
SEP 30,81	AUG 31,81	0.002	0.003	0.007	0.025	0.007	< 0.002	< 0.007
OCT 30,81	SEP 30,81	0.002	0.005	0.028	0.034	0.004	< 0.002	0.012
NOV 30,81	OCT 30,81	*****	*****	*****	*****	*****	*****	*****
JAN 5,82	NOV 30,81	0.004	0.012	0.012	0.173	0.019	< 0.002	0.103
FEB 2,82	JAN 5,82	*****	*****	*****	*****	*****	*****	*****
MAR 2,82	FEB 2,82	*****	*****	*****	*****	*****	*****	*****
MAR 30,82	MAR 2,82	0.002	0.004	U 0.050	0.049	0.014	< 0.002	0.045
APR 27,82	MAR 30,82	0.005	< 0.001	0.010	0.086	0.010	< 0.002	0.082
MAY 25,82	APR 27,82	U 0.018	0.009	0.012	0.183	0.012	< 0.002	0.132
JUN 22,82	MAY 25,82	0.007	0.001	0.008	0.029	0.004	< 0.002	0.021
JUL 20,82	JUN 22,82	0.006	0.001	0.008	0.072	0.007	< 0.002	0.057
AUG 17,82	JUL 20,82	0.005	0.001	0.016	0.085	0.005	< 0.002	0.074
SEP 14,82	AUG 17,82	0.001	< 0.001	0.002	0.015	< 0.001	< 0.002	0.008
OCT 12,82	SEP 14,82	0.002	< 0.001	0.004	0.017	0.008	< 0.002	0.021
NOV 9,82	OCT 12,82	0.006	< 0.001	0.010	0.129	0.021	< 0.002	0.084
DEC 7,82	NOV 9,82	0.001	< 0.001	0.005	0.012	0.009	< 0.002	0.010
JAN 4,83	DEC 7,82	*****	*****	*****	*****	*****	*****	*****

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : HANNER/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
JUL 4,80	MAY 28,80	L 0.006	0.0006	0.0977
JUL 31,80	JUL 4,80	L 0.004	0.0002	0.0589
SEP 2,80	JUL 31,80	L 0.010	0.0003	0.0813
SEP 30,80	SEP 2,80	0.009	< 0.0001	0.0724
OCT 31,80	SEP 30,80	0.017	0.0006	0.0813
NOV 28,80	OCT 31,80	*****	******	0.0776
DEC 31,80	NOV 28,80	*****	******	0.0794
JAN 30,81	DEC 31,80	*****	******	0.0933
FEB 27,81	JAN 30,81	U 0.100	U 0.0056	0.1023
MAR 31,81	FEB 27,81	*****	******	0.0490
APR 30,81	MAR 31,81	0.006	0.0003	0.0525
MAY 29,81	APR 30,81	*****	******	0.1349
JUN 30,81	MAY 29,81	0.031	0.0004	0.1148
JUL 31,81	JUN 30,81	*****	******	0.0525
AUG 31,81	JUL 31,81	0.007	0.0002	0.1023
SEP 30,81	AUG 31,81	0.005	0.0008	0.0589
OCT 30,81	SEP 30,81	0.013	0.0004	0.0550
NOV 30,81	OCT 30,81	*****	******	0.0794
JAN 5,82	NOV 30,81	0.032	< 0.0001	0.0447
FEB 2,82	JAN 5,82	*****	******	0.1259
MAR 2,82	FEB 2,82	*****	******	0.0891
MAR 30,82	MAR 2,82	0.009	0.0005	0.0724
APR 27,82	MAR 30,82	0.005	0.0005	0.0759
MAY 25,82	APR 27,82	0.003	0.0004	0.0550
JUN 22,82	MAY 25,82	0.002	< 0.0001	0.0631
JUL 20,82	JUN 22,82	0.003	0.0001	0.0933
AUG 17,82	JUL 20,82	0.007	0.0001	0.0031
SEP 14,82	AUG 17,82	0.001	< 0.0001	0.0079
OCT 12,82	SEP 14,82	0.001	< 0.0001	0.0977
NOV 9,82	OCT 12,82	0.007	0.0001	0.0832
DEC 7,82	NOV 9,82	< 0.002	< 0.0001	0.0501
JAN 4,83	DEC 7,82	*****	******	******

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : LIVELY/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
JUL 4,80	MAY 28,80	****	****	1	*****	*	2205	3	1	***		
JUL 31,80	JUL 4,80	****	****	1	68.2	9	2206	3	1	60		
SEP 2,80	JUL 31,80	****	****	1	112.2	9	2207	3	1	83		C
SEP 30,80	SEP 2,80	915	830	1	120.0	0	939	3	1	86	D	
OCT 31,80	SEP 30,80	830	1045	1	57.0	0	940	3	1	87	D	
NOV 28,80	OCT 31,80	1045	815	4	30.0	0	941	3	1	***	HG	N
DEC 31,80	NOV 28,80	815	830	2	36.0	0	942	3	1	54	CH	
JAN 30,81	DEC 31,80	830	1030	2	9.0	0	943	3	1	17	CDH	N
FEB 27,81	JAN 30,81	1030	925	2	51.0	0	944	3	1	81	C	
MAR 31,81	FEB 27,81	925	830	1	32.0	0	1922	3	1	64	CD	
APR 30,81	MAR 31,81	830	830	1	114.0	0	1916	3	1	86	CD	
MAY 29,81	APR 30,81	830	830	1	48.0	0	11217	3	1	74	ACD	
JUN 30,81	MAY 29,81	830	1030	1	109.0	0	11220	3	1	58	ACD	
JUL 31,81	JUN 30,81	1030	1115	1	41.0	0	11221	3	1	75	BCD	
AUG 31,81	JUL 31,81	1115	900	1	61.0	0	11223	3	1	70	ACD	
SEP 30,81	AUG 31,81	900	1245	1	147.0	0	11225	3	1	80	AD	
OCT 30,81	SEP 30,81	1245	815	1	111.0	0	11227	3	1	76	ACD	
NOV 30,81	OCT 30,81	815	1330	4	65.0	0	11229	3	1	52	ACD	
JAN 5,82	NOV 30,81	1330	1130	4	59.0	0	11231	3	1	61	CD	
FEB 2,82	JAN 5,82	1130	830	4	26.0	0	11233	3	1	9	CDFL	N
MAR 2,82	FEB 2,82	830	1415	2	25.0	0	11235	3	1	50	CD	
MAR 30,82	MAR 2,82	1415	1045	4	40.0	0	11237	3	1	82	CD	
APR 27,82	MAR 30,82	1045	1315	1	76.0	0	11239	3	1	77	CD	
MAY 25,82	APR 27,82	1315	****	1	25.0	0	11306	3	1	94		T
JUN 22,82	MAY 25,82	1330	815	1	56.0	0	11325	3	1	89		
JUL 20,82	JUN 22,82	815	1050	1	45.0	0	11344	3	1	86		
AUG 17,82	JUL 20,82	1050	815	1	8.0	0	11364	3	1	94		
SEP 14,82	AUG 17,82	815	920	1	121.0	0	11399	3	1	75	A	
OCT 12,82	SEP 14,82	920	930	1	120.0	0	11407	3	1	79		
NOV 9,82	OCT 12,82	930	930	1	60.1	9	11447	3	1	60		
DEC 7,82	NOV 9,82	930	1000	4	105.7	9	11457	3	1	76		
JAN 4,83	DEC 7,82	1000	1135	4	67.2	0	11481	3	1	57		

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : LIVELY/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
JUL 4,80	MAY 28,80	1965.0	48.0	4.04	0.1206	6.15	0.40	0.66
JUL 31,80	JUL 4,80	1345.0	41.6	4.02	0.1182	4.25	0.44	0.26
SEP 2,80	JUL 31,80	3050.0	26.0	4.10	0.0820	2.90	0.22	0.07
SEP 30,80	SEP 2,80	3351.0	38.8	4.10	0.1116	4.25	0.46	0.22
OCT 31,80	SEP 30,80	1615.0	33.0	4.46	0.0828	5.70	0.58	0.96
NOV 28,80	OCT 31,80	U 68.0	*****	4.55	******	3.05	0.57	*****
DEC 31,80	NOV 28,80	640.0	29.0	4.43	0.0804	3.85	0.54	0.34
JAN 30,81	DEC 31,80	U 50.0	*****	5.13	******	*****	*****	*****
FEB 27,81	JAN 30,81	1350.0	38.8	4.15	0.1014	2.90	0.74	0.08
MAR 31,81	FEB 27,81	675.0	30.0	4.59	0.0582	4.60	0.66	0.60
APR 30,81	MAR 31,81	3205.0	32.9	4.34	0.0866	5.55	0.47	0.72
MAY 29,81	APR 30,81	1155.0	49.2	3.98	0.1432	5.70	0.40	0.36
JUN 30,81	MAY 29,81	2070.0	40.4	4.13	0.1086	4.80	0.55	0.26
JUL 31,81	JUN 30,81	1000.0	40.6	4.44	0.0882	5.95	0.48	0.42
AUG 31,81	JUL 31,81	1400.0	42.8	4.05	0.1240	5.95	0.36	0.22
SEP 30,81	AUG 31,81	3840.0	32.2	4.24	0.0962	3.60	0.32	0.08
OCT 30,81	SEP 30,81	2753.0	32.4	4.16	0.1024	3.35	0.38	0.14
NOV 30,81	OCT 30,81	1101.0	24.6	4.39	0.1018	2.90	0.41	0.14
JAN 5,82	NOV 30,81	1174.0	33.7	4.23	0.0906	2.80	0.73	0.17
FEB 2,82	JAN 5,82	U 76.0	*****	4.23	******	U 10.20	U 1.57	*****
MAR 2,82	FEB 2,82	411.0	34.2	4.36	0.0886	3.05	0.80	0.22
MAR 30,82	MAR 2,82	1066.0	43.5	4.15	0.1084	3.15	0.72	0.16
APR 27,82	MAR 30,82	1907.0	39.8	4.16	0.1068	4.70	0.75	0.37
MAY 25,82	APR 27,82	771.0	69.5	3.76	0.1574	8.50	0.96	0.73
JUN 22,82	MAY 25,82	1635.0	33.1	4.13	0.0866	3.60	0.34	0.09
JUL 20,82	JUN 22,82	1267.0	47.4	3.95	0.1278	4.95	0.51	0.25
AUG 17,82	JUL 20,82	245.0	20.5	4.49	0.0584	2.50	0.44	0.31
SEP 14,82	AUG 17,82	2977.0	11.8	4.57	0.0464	1.30	0.16	0.09
OCT 12,82	SEP 14,82	3080.0	39.9	4.03	0.1158	4.15	0.46	0.11
NOV 9,82	OCT 12,82	1185.0	26.0	4.18	0.0722	2.50	0.33	0.16
DEC 7,82	NOV 9,82	2617.0	27.0	4.27	0.0770	2.20	0.44	0.12
JAN 4,83	DEC 7,82	1263.0	33.1	4.23	0.0972	2.60	0.68	0.23

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : LIVELY/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
JUL 4,80	MAY 28,80	U 1.10	*****	0.150	0.060	U 0.230	0.500	*****
JUL 31,80	JUL 4,80	0.14	*****	0.040	0.020	0.040	0.318	*****
SEP 2,80	JUL 31,80	0.08	*****	0.015	0.020	0.010	0.264	*****
SEP 30,80	SEP 2,80	0.06	0.61	0.025	0.020	0.020	0.560	0.001
OCT 31,80	SEP 30,80	0.38	1.22	U 0.260	U 0.670	0.080	0.840	U 0.069
NOV 28,80	OCT 31,80	0.42	*****	*****	*****	*****	*****	*****
DEC 31,80	NOV 28,80	U 1.35	1.24	0.100	0.060	U 0.950	0.770	0.034
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.24	0.71	0.015	0.030	0.190	0.500	0.005
MAR 31,81	FEB 27,81	0.48	1.47	0.095	0.050	0.310	1.160	0.014
APR 30,81	MAR 31,81	0.20	0.88	0.110	0.070	0.100	0.700	0.042
MAY 29,81	APR 30,81	0.10	0.65	0.075	U 0.190	0.080	0.410	0.018
JUN 30,81	MAY 29,81	0.12	0.80	0.080	0.070	0.040	0.670	0.040
JUL 31,81	JUN 30,81	U 1.08	U 2.75	0.165	U 0.240	U 0.420	1.410	U 0.215
AUG 31,81	JUL 31,81	0.09	0.96	0.040	0.040	0.020	0.850	0.003
SEP 30,81	AUG 31,81	0.04	0.53	0.005	0.040	0.080	0.400	0.021
OCT 30,81	SEP 30,81	0.08	0.34	0.015	0.030	0.020	0.316	0.016
NOV 30,81	OCT 30,81	0.18	0.52	0.075	0.030	0.170	0.490	0.012
JAN 5,82	NOV 30,81	U 1.46	0.77	0.020	0.010	U 1.010	0.570	0.008
FEB 2,82	JAN 5,82	U 9.82	*****	*****	*****	*****	U 1.870	*****
MAR 2,82	FEB 2,82	U 1.16	*****	0.030	0.080	U 0.950	*****	*****
MAR 30,82	MAR 2,82	0.28	0.52	0.030	< 0.005	0.165	0.460	0.005
APR 27,82	MAR 30,82	0.18	0.34	0.040	0.090	0.085	0.660	0.013
MAY 25,82	APR 27,82	0.22	1.80	0.150	0.100	0.100	0.050	U 0.123
JUN 22,82	MAY 25,82	0.03	0.49	0.025	0.050	0.015	0.380	0.008
JUL 20,82	JUN 22,82	0.14	0.51	0.045	0.045	0.030	0.390	0.013
AUG 17,82	JUL 20,82	0.14	1.34	0.065	U 0.155	0.065	0.510	0.045
SEP 14,82	AUG 17,82	0.05	0.23	0.010	<W 0.005	0.005	0.190	0.001
OCT 12,82	SEP 14,82	0.06	0.54	0.025	0.050	0.070	0.530	0.004
NOV 9,82	OCT 12,82	0.13	0.25	0.030	0.025	0.065	0.202	0.007
DEC 7,82	NOV 9,82	0.14	0.36	0.005	< 0.005	0.080	0.308	0.008
JAN 4,83	DEC 7,82	0.37	0.39	0.070	0.030	0.200	0.326	0.005

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : LIVELY/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
JUL 4,80	MAY 28,80	*****	U 0.223	L 0.011	0.205	0.011	*****	0.046
JUL 31,80	JUL 4,80	*****	0.010	L 0.006	0.077	0.006	*****	0.072
SEP 2,80	JUL 31,80	*****	0.012	L 0.004	0.052	0.010	*****	0.011
SEP 30,80	SEP 2,80	0.002	0.008	0.002	0.041	0.008	< 0.002	0.016
OCT 31,80	SEP 30,80	U 0.012	U 0.054	0.025	0.191	0.022	< 0.002	0.049
NOV 28,80	OCT 31,80	*****	*****	*****	*****	*****	*****	*****
DEC 31,80	NOV 28,80	U 0.022	U 0.105	0.033	U 0.712	0.027	< 0.002	0.227
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	0.002	0.005	0.016	0.055	0.008	< 0.002	< 0.038
MAR 31,81	FEB 27,81	0.005	0.001	U 0.090	0.139	0.005	< 0.002	0.219
APR 30,81	MAR 31,81	0.002	U 0.197	0.007	U 1.423	0.031	< 0.002	U 0.730
MAY 29,81	APR 30,81	0.004	0.022	0.013	0.297	0.009	< 0.002	0.077
JUN 30,81	MAY 29,81	< 0.001	0.002	< 0.003	0.040	0.006	< 0.002	0.018
JUL 31,81	JUN 30,81	0.008	0.004	0.026	0.071	0.016	< 0.002	0.044
AUG 31,81	JUL 31,81	0.004	< 0.001	0.008	0.043	0.008	< 0.002	0.025
SEP 30,81	AUG 31,81	0.002	0.017	0.007	0.064	0.026	< 0.002	0.017
OCT 30,81	SEP 30,81	0.002	0.014	0.017	0.056	0.012	< 0.002	0.014
NOV 30,81	OCT 30,81	0.003	0.012	U 0.052	0.066	0.007	< 0.002	0.075
JAN 5,82	NOV 30,81	< 0.001	U 0.044	0.011	0.281	0.022	< 0.002	0.047
FEB 2,82	JAN 5,82	*****	*****	*****	*****	*****	*****	*****
MAR 2,82	FEB 2,82	*****	*****	*****	*****	*****	*****	*****
MAR 30,82	MAR 2,82	0.002	U 0.053	0.021	0.130	0.026	< 0.002	0.062
APR 27,82	MAR 30,82	0.004	0.021	0.011	0.145	0.020	< 0.002	0.077
MAY 25,82	APR 27,82	0.010	0.003	0.010	0.160	0.010	0.002	0.114
JUN 22,82	MAY 25,82	0.002	0.001	< 0.003	0.015	0.004	< 0.002	< 0.008
JUL 20,82	JUN 22,82	0.003	< 0.001	0.015	0.039	0.006	< 0.002	0.106
AUG 17,82	JUL 20,82	0.008	0.005	0.008	U 0.333	0.007	< 0.002	0.175
SEP 14,82	AUG 17,82	0.001	< 0.001	< 0.003	0.010	0.004	< 0.002	0.007
OCT 12,82	SEP 14,82	0.001	0.002	0.004	0.022	0.013	< 0.002	0.012
NOV 9,82	OCT 12,82	0.002	< 0.001	0.004	0.029	0.006	< 0.002	0.009
DEC 7,82	NOV 9,82	0.001	0.001	0.003	0.016	0.007	< 0.002	0.006
JAN 4,83	DEC 7,82	0.003	0.004	0.007	0.083	0.010	< 0.002	0.045

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : LIVELY/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
JUL 4,80	MAY 28,80	L 0.032	0.0006	0.0912
JUL 31,80	JUL 4,80	L 0.013	0.0006	0.0955
SEP 2,80	JUL 31,80	L 0.019	0.0003	0.0794
SEP 30,80	SEP 2,80	0.018	< 0.0001	0.0794
OCT 31,80	SEP 30,80	0.061	0.0013	0.0347
NOV 28,80	OCT 31,80	*****	******	0.0282
DEC 31,80	NOV 28,80	U 0.189	0.0014	0.0372
JAN 30,81	DEC 31,80	*****	******	0.0074
FEB 27,81	JAN 30,81	0.009	0.0001	0.0708
MAR 31,81	FEB 27,81	0.015	0.0002	0.0257
APR 30,81	MAR 31,81	U 0.175	U 0.0027	0.0457
MAY 29,81	APR 30,81	0.043	0.0006	0.1047
JUN 30,81	MAY 29,81	0.007	0.0001	0.0741
JUL 31,81	JUN 30,81	0.007	0.0001	0.0363
AUG 31,81	JUL 31,81	0.003	0.0001	0.0891
SEP 30,81	AUG 31,81	0.037	0.0012	0.0575
OCT 30,81	SEP 30,81	0.017	0.0004	0.0692
NOV 30,81	OCT 30,81	0.014	0.0006	0.0407
JAN 5,82	NOV 30,81	0.076	0.0001	0.0589
FEB 2,82	JAN 5,82	*****	******	0.0589
MAR 2,82	FEB 2,82	*****	******	0.0437
MAR 30,82	MAR 2,82	U 0.138	0.0001	0.0708
APR 27,82	MAR 30,82	0.047	0.0009	0.0692
MAY 25,82	APR 27,82	0.007	0.0001	0.1738
JUN 22,82	MAY 25,82	0.004	< 0.0001	0.0741
JUL 20,82	JUN 22,82	0.001	0.0002	0.1122
AUG 17,82	JUL 20,82	0.007	0.0001	0.0324
SEP 14,82	AUG 17,82	< 0.001	< 0.0001	0.0269
OCT 12,82	SEP 14,82	0.012	0.0001	0.0933
NOV 9,82	OCT 12,82	0.004	< 0.0001	0.0661
DEC 7,82	NOV 9,82	0.003	< 0.0001	0.0537
JAN 4,83	DEC 7,82	0.002	0.0001	0.0589

PART V

OTHER SITES

CUMULATIVE PRECIPITATION CHEMISTRY LISTINGS

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GERMAIN PARK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-HOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
JUL 2,81	JUN 1,81	1201	915	1	97.0	0	10133	3	1	82	A	
JUL 31,81	JUL 2,81	920	1015	1	60.0	0	10185	3	1	31	J	NH
AUG 31,81	JUL 31,81	1025	1015	1	108.0	0	10242	3	1	30	ACFJ	N
SEP 30,81	AUG 31,81	1015	930	1	165.0	0	10282	3	1	77		
OCT 30,81	SEP 30,81	935	1000	1	85.0	0	10436	3	1	111		
NOV 30,81	OCT 30,81	1300	1000	3	33.0	0	10488	3	1	86	AC	H
FEB 2,82	DEC 31,81	935	1015	3	55.1	0	10524	3	1	18	C	N
MAR 2,82	FEB 2,82	1015	1000	3	20.2	0	10531	3	1	13		N
MAR 30,82	MAR 2,82	1000	945	3	37.1	0	10538	3	1	76		
APR 27,82	MAR 30,82	950	1000	3	63.0	0	10548	3	1	65		CH
MAY 25,82	APR 27,82	1000	1000	1	24.0	0	10675	3	1	59		HHC
JUN 22,82	MAY 25,82	1000	1000	1	71.5	0	38107	3	1	57		H
JUL 20,82	JUN 22,82	1000	1000	1	28.0	0	10692	3	1	5	AC	N
AUG 17,82	JUL 20,82	1000	950	1	44.0	0	38124	3	1	27	AC	NH
SEP 14,82	AUG 17,82	955	950	1	107.0	0	38135	3	1	64		H
OCT 12,82	SEP 14,82	955	1000	1	59.0	0	38171	3	1	54		H
NOV 9,82	OCT 12,82	1000	930	1	37.0	0	10707	3	1	56	ACH	HH
DEC 7,82	NOV 9,82	930	1000	1	66.3	0	10709	3	1	123		N
JAN 4,83	DEC 7,82	1005	930	3	49.0	0	10711	3	1	***	ADG	N

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GERMAIN PARK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM	PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L	CALCIUM MG/L
JUL 2,81	JUN 1,81	2610.0	23.5	4.43	******	3.35	0.36	0.59
JUL 31,81	JUL 2,81	U 615.0	51.5	4.89	0.0590	11.70	1.33	U 4.32
AUG 31,81	JUL 31,81	U 1055.0	58.0	4.26	0.1022	10.30	1.12	2.07
SEP 30,81	AUG 31,81	4130.0	*****	4.20	******	7.25	0.73	*****
OCT 30,81	SEP 30,81	3073.0	31.1	4.30	0.0832	3.70	0.46	0.58
NOV 30,81	OCT 30,81	923.0	26.4	U 6.06	0.0520	5.10	0.63	U 2.80
FEB 2,82	DEC 31,81	U 328.0	*****	*****	******	*****	*****	*****
MAR 2,82	FEB 2,82	U 86.0	*****	5.27	******	7.30	1.95	> 2.00
MAR 30,82	MAR 2,82	921.0	49.3	U 6.82	0.0266	8.65	1.24	U 3.92
APR 27,82	MAR 30,82	1345.0	57.8	U 7.34	0.0278	7.55	0.94	U 7.43
MAY 25,82	APR 27,82	466.0	92.5	U 7.18	0.0266	11.25	2.06	U 12.10
JUN 22,82	MAY 25,82	1332.0	45.4	U 6.19	0.0272	10.70	1.22	U 3.93
JUL 20,82	JUN 22,82	U 46.0	*****	U 7.15	U 0.1998	*****	*****	*****
AUG 17,82	JUL 20,82	U 400.0	U 120.0	U 6.78	0.0600	U 27.75	U 3.75	U 12.20
SEP 14,82	AUG 17,82	2241.0	34.4	4.37	0.0696	7.00	0.50	1.57
OCT 12,82	SEP 14,82	1040.0	63.0	4.24	0.0878	13.80	1.24	U 4.25
NOV 9,82	OCT 12,82	674.0	54.0	U 6.86	0.0384	11.90	0.72	U 7.25
DEC 7,82	NOV 9,82	2641.0	19.5	5.19	0.0370	4.10	0.41	1.19
JAN 4,83	DEC 7,82	U 193.0	*****	U 7.58	0.0736	4.55	0.41	*****

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GERMAIN PARK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	ANMONIUM AS N MG/L	PHOSPHOR MG/L
JUL 2,81	JUN 1,81	0.14	0.60	0.085	0.040	0.050	0.460	0.015
JUL 31,81	JUL 2,81	0.48	1.40	0.685	0.090	0.150	0.980	0.055
AUG 31,81	JUL 31,81	0.50	1.62	0.460	0.110	0.100	1.190	0.055
SEP 30,81	AUG 31,81	0.20	*****	*****	*****	*****	*****	*****
OCT 30,81	SEP 30,81	0.14	0.50	0.085	0.020	0.030	0.390	0.015
NOV 30,81	OCT 30,81	0.56	0.82	0.335	0.060	0.150	0.600	0.025
FEB 2,82	DEC 31,81	*****	*****	*****	*****	*****	*****	*****
MAR 2,82	FEB 2,82	U 1.50	*****	> 0.500	0.090	U 1.000	*****	*****
MAR 30,82	MAR 2,82	U 1.40	1.13	0.650	0.055	U 0.850	0.850	0.016
APR 27,82	MAR 30,82	0.90	0.21	0.525	0.115	0.450	0.730	0.006
MAY 25,82	APR 27,82	U 1.42	2.10	0.900	0.425	U 0.725	0.960	U 0.258
JUN 22,82	MAY 25,82	0.54	1.50	0.875	0.135	0.150	1.030	0.028
JUL 20,82	JUN 22,82	*****	*****	*****	*****	*****	*****	*****
AUG 17,82	JUL 20,82	U 1.62	U 4.60	U 2.050	0.415	0.515	U 3.100	0.148
SEP 14,82	AUG 17,82	0.26	0.77	0.355	0.045	0.505	0.650	0.015
OCT 12,82	SEP 14,82	0.58	1.64	0.875	0.230	0.220	1.240	0.050
NOV 9,82	OCT 12,82	0.68	0.88	U 1.500	0.110	0.200	0.650	0.028
DEC 7,82	NOV 9,82	0.38	0.50	0.290	0.050	0.125	0.450	0.012
JAN 4,83	DEC 7,82	U 1.12	*****	*****	*****	*****	0.480	*****

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GERMAIN PARK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
JUL 2,81	JUN 1,81	*****	0.002	0.010	0.050	0.007	< 0.002	0.024
JUL 31,81	JUL 2,81	0.015	0.004	0.032	0.327	0.031	0.005	0.270
AUG 31,81	JUL 31,81	0.023	0.005	0.058	0.545	0.034	0.016	0.394
SEP 30,81	AUG 31,81	0.008	0.002	0.017	0.069	0.017	0.003	0.048
OCT 30,81	SEP 30,81	0.004	< 0.001	L 0.009	0.051	0.011	< 0.002	0.047
NOV 30,81	OCT 30,81	0.007	< 0.001	0.026	0.077	0.014	0.002	0.044
FEB 2,82	DEC 31,81	*****	*****	*****	*****	*****	*****	*****
MAR 2,82	FEB 2,82	*****	*****	*****	*****	*****	*****	*****
MAR 30,82	MAR 2,82	0.012	0.001	0.038	0.122	0.005	0.002	0.101
APR 27,82	MAR 30,82	0.004	0.001	0.025	0.133	0.004	0.003	0.111
MAY 25,82	APR 27,82	0.031	0.003	0.056	0.663	0.023	0.006	0.679
JUN 22,82	MAY 25,82	0.014	0.001	0.047	0.138	0.011	0.004	0.078
JUL 20,82	JUN 22,82	*****	*****	*****	*****	*****	*****	*****
AUG 17,82	JUL 20,82	0.026	0.001	0.081	0.342	0.005	0.005	0.205
SEP 14,82	AUG 17,82	0.004	< 0.001	0.014	0.060	0.014	< 0.002	0.040
OCT 12,82	SEP 14,82	0.011	0.001	0.033	0.230	0.047	< 0.002	0.162
NOV 9,82	OCT 12,82	0.015	< 0.001	0.055	0.261	0.021	0.008	0.215
DEC 7,82	NOV 9,82	0.004	0.001	0.009	0.088	0.017	0.002	0.054
JAN 4,83	DEC 7,82	0.009	0.001	0.033	0.273	0.017	0.010	0.183

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : GERMAIN PARK/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
JUL 2,81	JUN 1,81	0.004	< 0.0001	0.0372
JUL 31,81	JUL 2,81	0.009	0.0007	0.0129
AUG 31,81	JUL 31,81	0.060	0.0006	0.0550
SEP 30,81	AUG 31,81	0.011	0.0005	0.0631
OCT 30,81	SEP 30,81	L 0.003	< 0.0001	0.0501
NOV 30,81	OCT 30,81	0 009	0.0008	U 0.0009
FEB 2,82	DEC 31,81	*****	******	******
MAR 2,82	FEB 2,82	*****	******	0.0054
MAR 30,82	MAR 2,82	0.020	< 0.0001	U 0.0002
APR 27,82	MAR 30,82	0.013	0.0003	U 0.0000
MAY 25,82	APR 27,82	0.019	0.0005	U 0.0001
JUN 22,82	MAY 25,82	0.019	0.0004	U 0.0006
JUL 20,82	JUN 22,82	*****	******	U 0.0001
AUG 17,82	JUL 20,82	0.036	< 0.0001	U 0.0002
SEP 14,82	AUG 17,82	0.004	0.0001	0.0427
OCT 12,82	SEP 14,82	0.008	0.0003	0.0575
NOV 9,82	OCT 12,82	0.005	0.0003	U 0.0001
DEC 7,82	NOV 9,82	0.002	0.0004	0.0065
JAN 4,83	DEC 7,82	0.016	0.0002	U 0.0000

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : TORONTO/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	SAMPLING START HR.	SAMPLING END HR.	SAMPLE TYPE 01-RAIN 02-SNOW 03-COMP/04-ICE	GAUGE DEPTH(MM)	GAUGE TYPE 00-APIOS 01-STD. 02-NIPHER 09-AES	SAMPLE NUMBER	PROJECT CODE 02-APIOS 03-SPECIAL	SUBPROJECT CODE 01-MOE 03-AES 04-ON HYDRO	SAMPLER EFFICIENCY (%)	COMMENTS FIELD	COMMENTS OFFICE
JUL 2,80	JUN 2,80	****	****	1	83.4	9	2224	3	1	72		
AUG 1,80	JUL 2,80	1030	****	1	106.2	9	2226	3	1	53	D	
SEP 2,80	AUG 1,80	1000	830	1	45.0	9	2228	3	1	36	DFHI	
SEP 30,80	SEP 2,80	900	900	1	48.2	9	927	3	1	***	G	
OCT 31,80	SEP 30,80	900	900	1	71.0	0	928	3	1	105	AD	
NOV 28,80	OCT 31,80	900	900	3	34.0	0	929	3	1	79	CDFIL	
DEC 31,80	NOV 28,80	900	1135	2	73.0	0	930	3	1	45	FL	N
JAN 30,81	DEC 31,80	1135	****	3	*****	*	931	3	1	***	CD	
FEB 27,81	JAN 30,81	750	915	3	69.0	0	932	3	1	***	GH	N
MAR 31,81	FEB 27,81	915	930	3	25.0	0	1924	3	1	65	CDF	
APR 30,81	MAR 31,81	930	750	3	47.0	0	1885	3	1	78	D	
JUN 1,81	APR 30,81	850	1130	1	73.0	0	12002	3	1	59	CFIL	
JUN 30,81	JUN 2,81	1130	935	1	112.0	0	12010	3	1	31	CDI	N
JUL 31,81	JUN 30,81	935	925	1	60.0	0	12020	3	1	46	ADF	NH
SEP 11,81	JUL 31,81	925	1600	1	115.0	0	12021	3	1	144		N
OCT 5,81	SEP 11,81	1600	900	1	13.6	0	10278	3	1	166		N
OCT 30,81	OCT 5,81	900	1100	1	106.1	9	10434	3	1	62		
NOV 30,81	OCT 30,81	1100	900	1	48.2	9	10490	3	1	78		H
JAN 5,82	NOV 30,81	900	900	4	55.0	0	10492	3	1	***	GH	H
FEB 2,82	JAN 5,82	900	1530	3	48.0	0	10526	3	1	35	C	N
MAR 2,82	FEB 2,82	1530	1600	4	31.1	0	10532	3	1	68		
MAR 30,82	MAR 2,82	1600	830	3	57.7	0	10537	3	1	81	F	
APR 27,82	MAR 30,82	830	1700	1	54.5	0	10544	3	1	***	G	N
MAY 25,82	APR 27,82	1700	1530	1	73.0	0	10673	3	1	48	C	NH
JUN 22,82	MAY 25,82	1530	800	1	87.5	0	38105	3	1	54		
JUL 20,82	JUN 22,82	800	730	1	80.0	0	10699	3	1	41		NHCM
AUG 16,82	JUL 20,82	730	1500	1	40.0	0	38131	3	1	81	C	
SEP 14,82	AUG 17,82	1500	800	1	98.0	9	38140	3	1	***		X
OCT 12,82	SEP 14,82	800	900	1	122.0	0	38170	3	1	79	CD	
NOV 9,82	OCT 12,82	900	1430	2	70.0	0	10705	3	1	72	B	H
DEC 7,82	NOV 9,82	1430	1400	1	54.0	0	38210	3	1	91		H
JAN 4,83	DEC 7,82	1400	930	4	74.0	0	38208	3	1	65		

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : TORONTO/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	VOLUME ML	CONDUCT. UMHO/CM		PH LAB	TOTAL H+ TO PH8.3 MG/L	SULPHATE MG/L	NITRATE AS N MG/L		CALCIUM MG/L
JUL 2,80	JUN 2,80	1950.0	51.0		4.11	0.1080	7.60	1.11		1.76
AUG 1,80	JUL 2,80	1860.0	71.5		3.80	0.1772	8.60	0.83		0.80
SEP 2,80	AUG 1,80	535.0	90.0		3.70	0.2166	10.30	1.14		1.23
SEP 30,80	SEP 2,80	100.0	*****	U	6.53	0.0474	7.35	0.77		*****
OCT 31,80	SEP 30,80	2435.0	27.3		4.32	0.0820	3.30	0.52		0.57
NOV 28,80	OCT 31,80	875.0	48.5		4.25	0.1074	5.15	1.13		1.50
DEC 31,80	NOV 28,80	U 1070.0	44.7	U	6.86	0.0374	5.30	0.75	U	3.65
JAN 30,81	DEC 31,80	190.0	*****	U	6.86	******	6.30	0.83		2.00
FEB 27,81	JAN 30,81	U 130.0	*****	U	7.01	******	4.85	0.65	U	2.20
MAR 31,81	FEB 27,81	530.0	77.5	U	6.97	0.0326	12.00	0.92	U	6.40
APR 30,81	MAR 31,81	1205.0	39.3		4.25	0.1006	5.80	0.77		1.35
JUN 1,81	APR 30,81	1400.0	39.1	U	6.79	0.0332	8.45	0.94	U	3.25
JUN 30,81	JUN 2,81	U 1160.0	42.9		4.12	0.1172	5.75	0.77		0.95
JUL 31,81	JUN 30,81	U 900.0	25.0	U	6.02	0.0314	5.65	0.54	U	2.40
SEP 11,81	JUL 31,81	5380.0	58.0		3.96	0.1426	7.05	0.71		0.87
OCT 5,81	SEP 11,81	735.0	42.7		4.73	0.0620	9.50	0.79	U	3.20
OCT 30,81	OCT 5,81	2166.0	35.8		4.53	0.0706	6.75	0.87	U	2.30
NOV 30,81	OCT 30,81	1230.0	29.9	U	6.07	0.0416	5.45	0.74	U	2.80
JAN 5,82	NOV 30,81	1423.0	49.0	U	6.18	0.0430	6.40	0.95	U	4.20
FEB 2,82	JAN 5,82	U 559.0	34.2	U	5.86	0.0422	2.20	0.48		1.46
MAR 2,82	FEB 2,82	692.0	43.5		4.10	0.1136	3.30	0.82		0.67
MAR 30,82	MAR 2,82	1518.0	40.7	U	6.46	0.0284	6.40	1.18	U	3.02
APR 27,82	MAR 30,82	U 780.0	36.6	U	6.29	0.0324	7.45	0.99	U	2.93
MAY 25,82	APR 27,82	U 1153.0	57.0		4.33	0.0816	12.05	1.01	U	2.58
JUN 22,82	MAY 25,82	1556.0	55.0		4.46	0.0734	11.15	1.44	U	3.58
JUL 20,82	JUN 22,82	U 1071.0	77.5		5.09	0.0560	17.75	2.02		1.12
AUG 16,82	JUL 20,82	1061.0	54.5		4.03	0.1278	7.95	0.79		1.06
SEP 14,82	AUG 17,82	******	*****		*****	******	*****	*****		*****
OCT 12,82	SEP 14,82	3149.0	42.1		4.00	0.1072	5.10	0.63		0.79
NOV 9,82	OCT 12,82	1655.0	34.4		4.55	0.0916	7.00	0.79	U	2.45
DEC 7,82	NOV 9,82	1601.0	31.0		4.61	0.0568	5.35	0.64		1.78
JAN 4,83	DEC 7,82	1578.0	35.0		4.58	0.0608	5.10	0.82		1.88

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : TORONTO/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	CHLORIDE MG/L	KJELDAHL AS N MG/L	MAGNESIM MG/L	POTASSIM MG/L	SODIUM MG/L	AMMONIUM AS N MG/L	PHOSPHOR MG/L
JUL 2,80	JUN 2,80	0.42	0.90	0.390	0.050	0.090	0.770	0.007
AUG 1,80	JUL 2,80	0.40	0.90	0.145	0.030	0.100	0.670	0.005
SEP 2,80	AUG 1,80	0.52	0.94	0.205	0.040	0.060	0.750	0.007
SEP 30,80	SEP 2,80	1.06	*****	*****	*****	*****	1.490	*****
OCT 31,80	SEP 30,80	0.38	0.45	0.105	0.020	0.050	0.440	0.005
NOV 28,80	OCT 31,80	0.60	1.14	0.210	0.090	0.280	0.930	0.007
DEC 31,80	NOV 28,80	U 4.90	1.12	0.295	U 0.280	U 2.100	0.600	0.015
JAN 30,81	DEC 31,80	U 13.30	*****	0.465	U 0.200	*****	0.282	*****
FEB 27,81	JAN 30,81	U 3.40	*****	0.825	0.030	U 1.750	0.550	*****
MAR 31,81	FEB 27,81	U 8.00	1.34	0.510	0.110	U 4.700	1.040	0.023
APR 30,81	MAR 31,81	0.60	0.80	0.230	0.070	0.170	0.660	0.010
JUN 1,81	APR 30,81	0.97	1.35	0.775	0.150	0.280	0.960	0.070
JUN 30,81	JUN 2,81	0.35	1.00	0.185	0.050	0.080	0.720	0.020
JUL 31,81	JUN 30,81	0.46	0.51	0.435	0.070	0.100	0.380	0.011
SEP 11,81	JUL 31,81	0.34	0.65	0.165	0.040	0.040	0.540	0.012
OCT 5,81	SEP 11,81	1.02	0.72	0.600	0.040	0.090	0.640	0.070
OCT 30,81	OCT 5,81	0.56	0.75	0.465	0.140	0.060	0.600	0.022
NOV 30,81	OCT 30,81	0.92	0.90	0.335	0.080	0.240	0.570	0.055
JAN 5,82	NOV 30,81	U 5.14	0.75	0.435	0.110	U 2.750	0.600	0.038
FEB 2,82	JAN 5,82	U 5.85	0.55	0.340	0.070	*****	0.272	U 0.152
MAR 2,82	FEB 2,82	U 2.03	0.55	0.140	0.020	U 1.100	0.440	0.015
MAR 30,82	MAR 2,82	U 1.97	0.92	0.500	0.045	U 1.120	0.650	0.016
APR 27,82	MAR 30,82	1.00	0.18	0.450	0.070	0.405	0.960	0.005
MAY 25,82	APR 27,82	0.78	1.39	0.575	0.100	0.155	1.120	0.018
JUN 22,82	MAY 25,82	0.86	1.35	0.625	U 0.225	0.170	1.030	0.029
JUL 20,82	JUN 22,82	U 1.61	2.25	U 1.300	0.175	0.275	1.730	0.073
AUG 16,82	JUL 20,82	0.40	1.31	0.185	0.055	0.045	1.030	0.009
SEP 14,82	AUG 17,82	*****	*****	*****	*****	*****	*****	*****
OCT 12,82	SEP 14,82	0.31	0.66	0.175	0.030	0.035	0.500	0.016
NOV 9,82	OCT 12,82	0.72	0.74	0.470	U 0.285	0.145	0.520	0.027
DEC 7,82	NOV 9,82	0.93	0.68	0.350	0.050	0.160	0.670	0.030
JAN 4,83	DEC 7,82	U 2.00	0.34	0.420	0.070	U 0.840	0.570	0.013

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : TORONTO/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	MANGANSE MG/L	NICKEL MG/L	ZINC MG/L	IRON MG/L	LEAD MG/L	VANADIUM MG/L	ALUMINUM MG/L
JUL 2,80	JUN 2,80	0.014	0.002	0.027	0.170	0.032	< 0.002	0.130
AUG 1,80	JUL 2,80	0.008	< 0.001	0.019	0.132	0.027	< 0.002	0.138
SEP 2,80	AUG 1,80	0.006	0.002	0.065	0.215	0.032	< 0.005	0.119
SEP 30,80	SEP 2,80	*****	*****	*****	*****	*****	*****	*****
OCT 31,80	SEP 30,80	0.005	0.001	0.020	0.076	0.024	< 0.002	0.087
NOV 28,80	OCT 31,80	0.012	< 0.001	0.034	0.137	0.041	< 0.002	0.084
DEC 31,80	NOV 28,80	0.014	0.002	0.065	0.170	0.022	< 0.002	0.075
JAN 30,81	DEC 31,80	*****	*****	*****	*****	*****	*****	*****
FEB 27,81	JAN 30,81	*****	*****	*****	*****	*****	*****	*****
MAR 31,81	FEB 27,81	0.032	0.004	0.069	0.454	0.035	0.003	0.325
APR 30,81	MAR 31,81	0.012	< 0.001	0.022	0.154	0.025	< 0.002	0.160
JUN 1,81	APR 30,81	0.021	0.002	0.069	0.391	0.040	< 0.002	0.212
JUN 30,81	JUN 2,81	0.004	< 0.001	L 0.003	L 0.036	< 0.001	< 0.002	L 0.043
JUL 31,81	JUN 30,81	0.012	0.001	0.038	0.269	0.053	< 0.002	0.153
SEP 11,81	JUL 31,81	0.007	< 0.001	0.028	0.102	0.030	< 0.002	0.064
OCT 5,81	SEP 11,81	0.022	0.001	0.065	0.227	0.087	< 0.002	0.139
OCT 30,81	OCT 5,81	0.012	0.001	L 0.033	0.195	0.059	< 0.002	0.116
NOV 30,81	OCT 30,81	0.016	< 0.001	0.049	0.203	0.049	< 0.002	0.068
JAN 5,82	NOV 30,81	0.015	0.002	0.069	0.257	0.024	< 0:002	0.145
FEB 2,82	JAN 5,82	0.016	< 0.001	0.040	0.462	0.024	0.004	0.318
MAR 2,82	FEB 2,82	0.004	< 0.001	0.018	0.097	0.043	< 0.002	0.081
MAR 30,82	MAR 2,82	0.014	0.001	0.043	0.245	0.012	< 0.002	0.130
APR 27,82	MAR 30,82	0.024	0.001	0.037	0.397	0.021	< 0.002	0.306
MAY 25,82	APR 27,82	0.012	< 0.001	0.023	0.239	0.006	< 0.002	0.138
JUN 22,82	MAY 25,82	0.022	0.004	0.053	0.207	0.043	< 0.002	0.118
JUL 20,82	JUN 22,82	0.031	0.003	0.080	0.378	0.055	< 0.002	0.215
AUG 16,82	JUL 20,82	0.008	< 0.001	0.050	0.087	0.026	< 0.002	0.049
SEP 14,82	AUG 17,82	*****	*****	*****	*****	*****	*****	*****
OCT 12,82	SEP 14,82	0.006	< 0.001	0.013	0.082	0.001	< 0.002	0.051
NOV 9,82	OCT 12,82	0.012	0.002	0.035	0.189	0.044	< 0.002	0.108
DEC 7,82	NOV 9,82	0.011	< 0.001	0.031	0.187	0.060	< 0.002	0.078
JAN 4,83	DEC 7,82	0.011	0.002	0.034	0.148	0.048	< 0.002	0.074

ONTARIO MINISTRY OF THE ENVIRONMENT
CUMULATIVE SAMPLING ANALYSIS RESULTS
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

STATION NAME : TORONTO/CUMULATIVE PRECIP.

REMOVAL DATE	EXPOSURE DATE	COPPER MG/L	CADMIUM MG/L	FREE H+ MG/L
JUL 2,80	JUN 2,80	0.006	0.0004	0.0776
AUG 1,80	JUL 2,80	0.020	0.0002	0.1585
SEP 2,80	AUG 1,80	0.011	0.0003	0.1995
SEP 30,80	SEP 2,80	******	******	U 0.0003
OCT 31,80	SEP 30,80	0.003	0.0003	0.0479
NOV 28,80	OCT 31,80	0.006	0.0005	0.0562
DEC 31,80	NOV 28,80	0.021	0.0011	U 0.0001
JAN 30,81	DEC 31,80	******	******	U 0.0001
FEB 27,81	JAN 30,81	******	******	U 0.0001
MAR 31,81	FEB 27,81	0.027	0.0010	U 0.0001
APR 30,81	MAR 31,81	0.017	< 0.0001	0.0562
JUN 1,81	APR 30,81	0.022	0.0006	U 0.0002
JUN 30,81	JUN 2,81	L< 0.001	0.0001	0.0759
JUL 31,81	JUN 30,81	0.009	0.0004	U 0.0010
SEP 11,81	JUL 31,81	0.003	0.0003	0.1096
OCT 5,81	SEP 11,81	0.028	0.0004	0.0186
OCT 30,81	OCT 5,81	L 0.008	0.0002	0.0295
NOV 30,81	OCT 30,81	0.011	0.0006	U 0.0009
JAN 5,82	NOV 30,81	0.010	0.0004	U 0.0007
FEB 2,82	JAN 5,82	0.002	< 0.0001	U 0.0014
MAR 2,82	FEB 2,82	0.021	0.0003	0.0794
MAR 30,82	MAR 2,82	0.007	0.0005	U 0.0003
APR 27,82	MAR 30,82	0.012	0.0005	U 0.0005
MAY 25,82	APR 27,82	0.005	0.0002	0.0468
JUN 22,82	MAY 25,82	0.013	0.0005	0.0347
JUL 20,82	JUN 22,82	0.015	U 0.0027	0.0081
AUG 16,82	JUL 20,82	0.004	< 0.0001	0.0933
SEP 14,82	AUG 17,82	******	******	******
OCT 12,82	SEP 14,82	0.003	0.0002	0.1000
NOV 9,82	OCT 12,82	0.009	0.0002	0.0282
DEC 7,82	NOV 9,82	0.014	0.0005	0.0245
JAN 4,83	DEC 7,82	0.012	0.0004	0.0263